ARCHITECTURAL

Record

JUNE 1937

BUILDING NEWS

Background and foreground of current events viewed with an eye on building. . . . Wheaton College students listen to *Walter Behrendt, Walter Gropius, Joseph Hudnut, Carl Feiss* and *Philip Youtz*—page 27. . . . *Robert Mallet-Stevens* designs "The Palace of Electricity"—page 28. . . . Will home shows rival auto shows?—page 36. . . . New products in headlines—page 40

DESIGN TRENDS

Paul Nelson explains his three-point approach to architectural design—page 53. . . . St. Louis, by means of *planned neighborhoods*, lures people back to city—page 58 . . . Havana architects create a noteworthy open-air theater—page 60. . . . *Thomas Holden* studies present construction figures in light of past—page 63. . . . *Pictorial Record*—page 66

BUILDING TYPES

COMMUNITY RECREATION—a 40-page reference study edited by *Oscar Fisher* begins on page 111. . . . *George D. Butler* of National Recreation Association tells what specialists expect from planners—page 113. . . . *Le Corbusier* presents "The Module"—page 120. . . . Topical illustrations—pages 129 to 142. . . . Worth noting—"surfacing" comments—page 147

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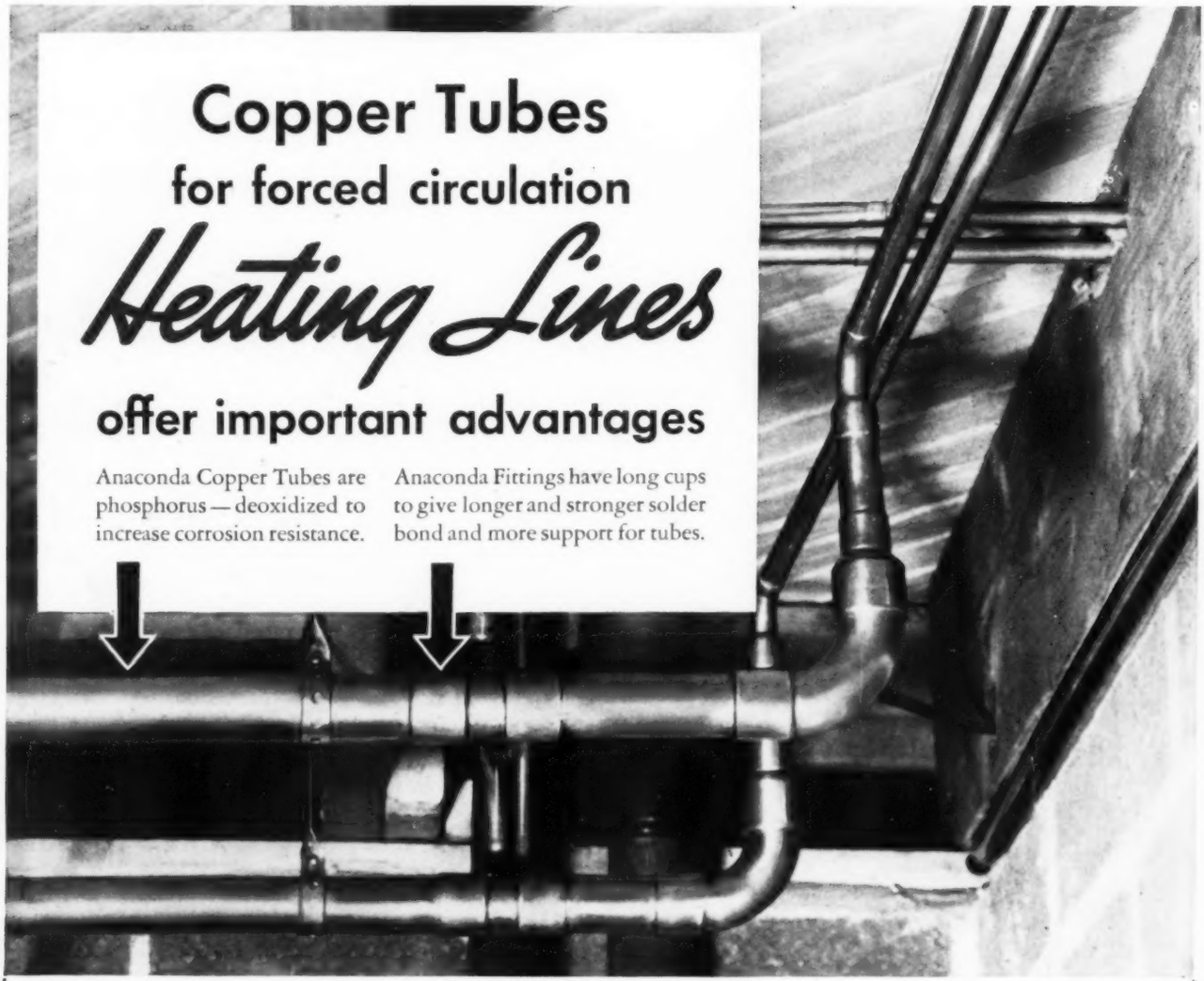
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STEEP ROOF PITCH

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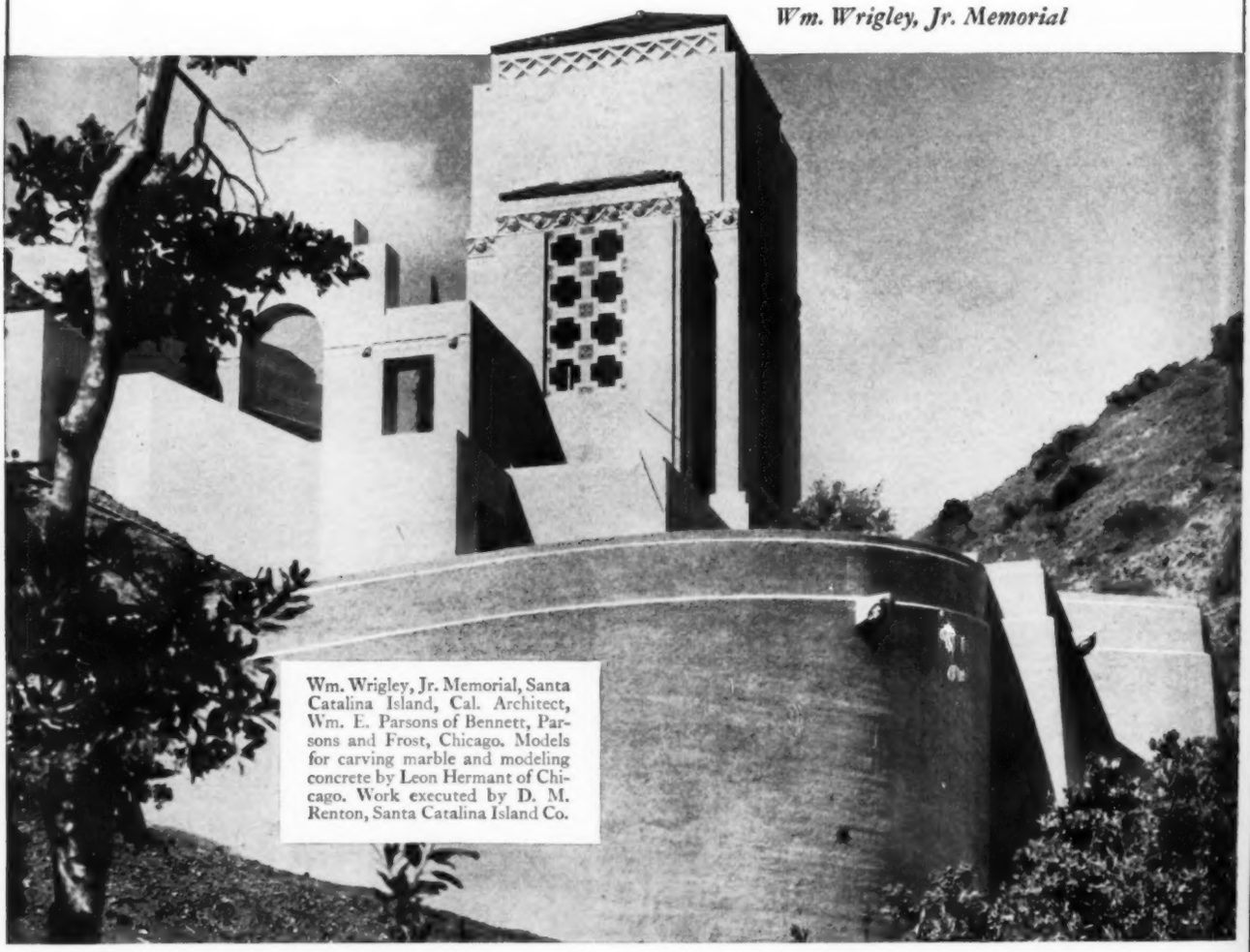
CONCRETE FOR PERMANENCE . . . AND BEAUTY

Wm. Wrigley, Jr. Memorial



Wm. Wrigley, Jr. Memorial, Santa Catalina Island, Cal. Architect, Wm. E. Parsons of Bennett, Parsons and Frost, Chicago. Models for carving marble and modeling concrete by Leon Hermant of Chicago. Work executed by D. M. Renton, Santa Catalina Island Co.

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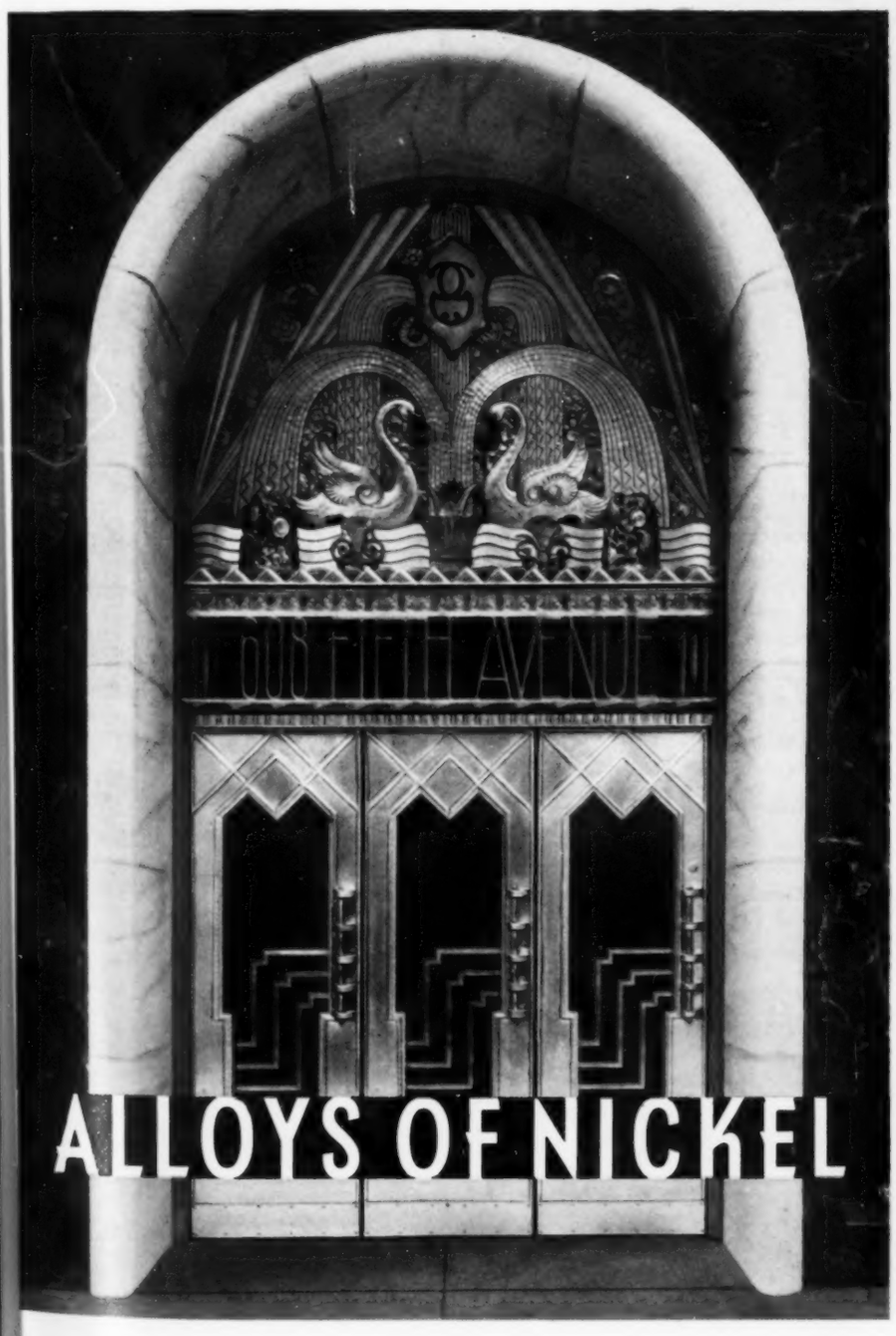
Stately as the dome of Kubla Khan



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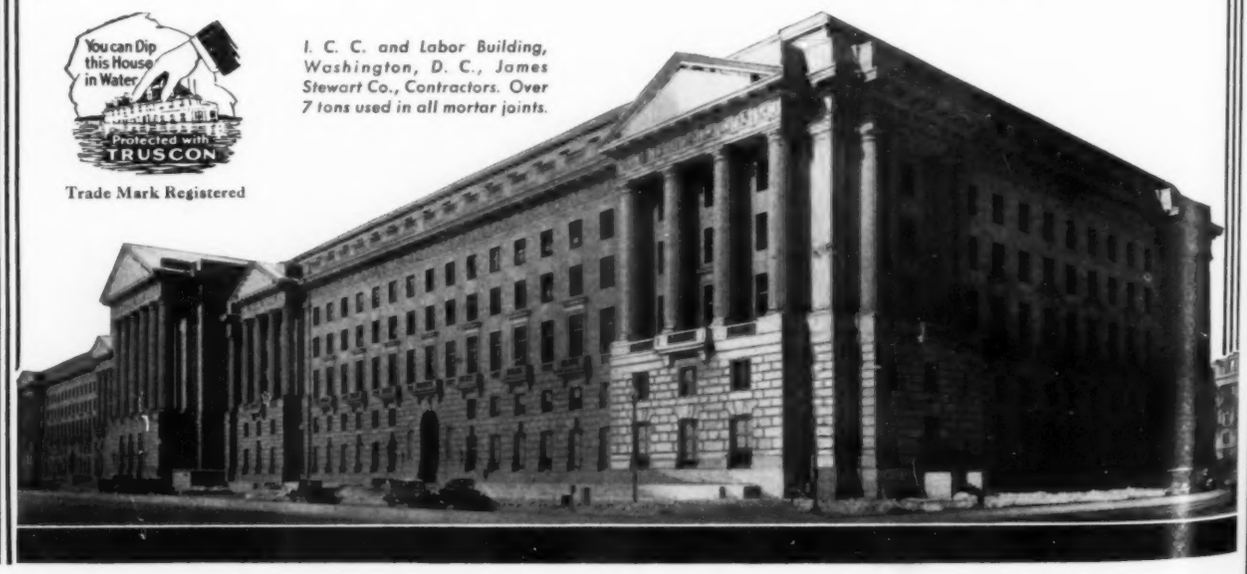

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BEHIND THE *Record*

HOW CAN a magazine intended for those whose job it is to create buildings best present to its readers the building world of today? Doubtless there are various solutions, but RECORD editors have a hunch that readers will find the publication easier to read and easier to assimilate if the shifting patterns of this kaleidoscopic subject are recorded in something like chronological order.

To cope with an increasing amount of information on an increasing number of factors, we go to press this month, and henceforth, with "three magazines within a magazine." Each is self-explanatory and each, we believe, is worthwhile. Further deponent sayeth not.

▲

Coming "Super-Attractions"

WHEREAS most writers have large wastebaskets into which they toss correspondence rejecting articles, it is editorial gossip that Mr. Mumford has a large basket into which he tosses correspondence requesting articles. If he does, we opine that a courteous and reason-why response to the unfortunate editor precedes the discard, for Mr. Mumford is acquainted with both sides of the desk.

Editorial gossip and opinions notwithstanding, we have a letter in our files which we'd like to quote in full, but can only release in part; even so, you'll get the idea.

"It would be a great pleasure to appear again in the RECORD and I thank you heartily for the invitation . . . to you by the middle of the summer."

Cordially yours,
LEWIS MUMFORD.
——, N. Y.
26 April, 1937

• • •

AND we have not a letter but a cable which likewise does our heart good. It is **ISOTYPE** from Dr. Otto Neurath of the Mundaneum Institute, Vienna, and Director of the International Foundation for Visual Education.

Dr. Neurath is the originator of "Isotype" and other internationally-famous graphic symbols—termed in America as "visual Esperanto." Quoting from *The Architect's Journal* of London: "It sounds a simple thing to work out a system of attractive and expressive symbols. But try, even with an elementary problem, to arrive at a satisfactory differentiation of symbols, and you will realize how vastly important

to countless organizations, besides the professions of architecture and town planning, Dr. Neurath's beautifully presented science of persuasive statistics has become."

Because the architect not only prepares plans and other drawings for builders, but for exhibitions, demonstrations to school boards, home owners, corporations, etc., we asked Dr. Neurath to review methods for graphic indication especially applicable to architectural and design practice.

The cable? Well, it reads: "**ARTICLE COMING SOON.**" Our fingers are crossed but we hope it makes connections with the July schedule.

▲

Viva Mexico

MEXICO, as revealed by Ernest and Esther Born in the RECORD for April (*The New Architecture in Mexico*), is a far cry from the

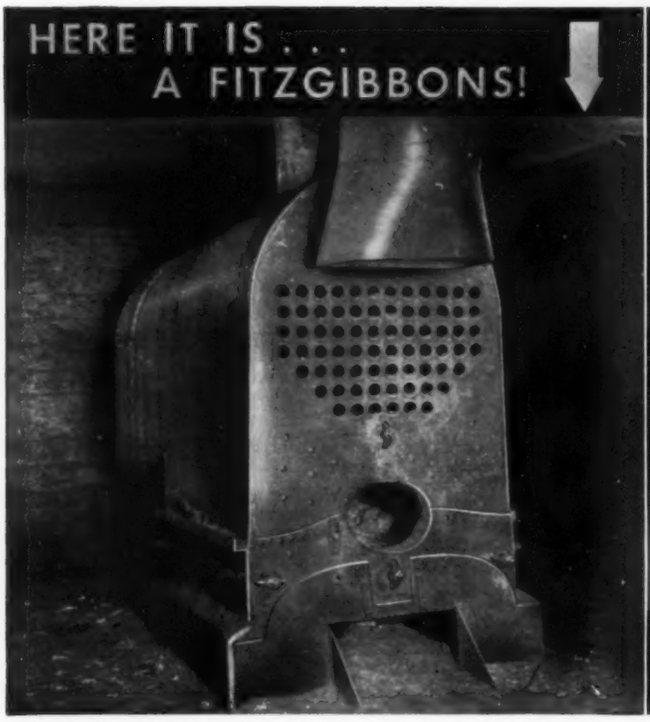
Mexico we knew some twenty years ago. In those days the most typical *gringo* story concerned the political exigencies of a Chinese shopkeeper. We hope it bears repeating.

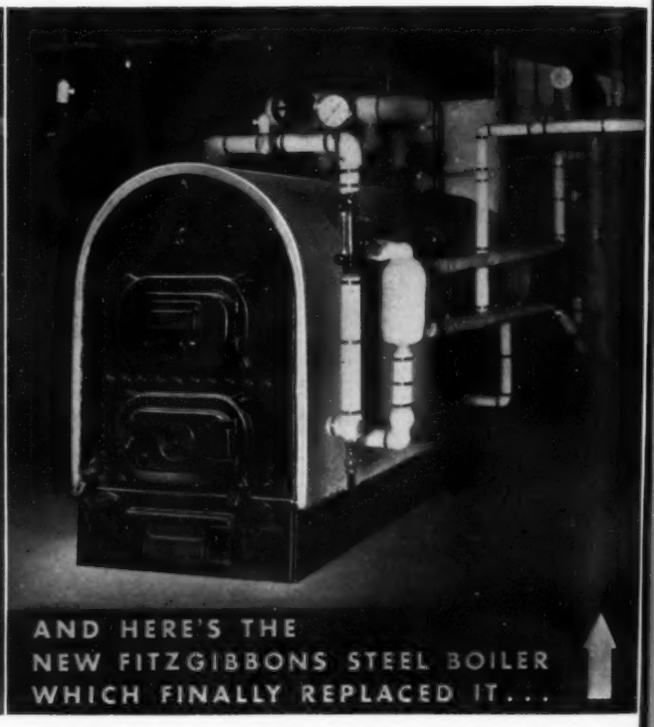
One lazy afternoon a troop of *banditos* stormed the Chinaman's shop, demanding in no uncertain terms, "Viva who? Viva who?"

John hastily sized up his predicament and took a chance with "Viva Carranza! Viva Caranza!" Whereupon

(Continued on page 7)

Ever Hear of A HEATING BOILER which STOOD THE GAFF for 46 YEARS?





This FITZGIBBONS STEEL BOILER was installed at the Post Office in Oswego, N. Y., when Grover Cleveland started his first term as President. For 46 years it provided outstanding heating service . . . finally was replaced by the modern FITZGIBBONS STEEL BOILER shown on the right — one of the "FS" series.

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BEHIND THE *Record*

the bandits ransacked and wrecked his store.

A few weeks later, after he had rebuilt and restocked, *banditos* again descended on his humble enterprise, asking "Viva who? Viva who?"

John, a believer in the law of averages, responded with "Viva Villa! Viva Villa!" Once more his shop was destroyed.

Doggedly he rebuilt. In due time, of course, unwelcome visitors again cornered him with "Viva who?" John, however, was catching up on his politics. Backing away from the threatening mob, he yelled, "You viva first! You viva first!"

To get back to the subject—as this is written the predominant theme of letters to the RECORD is still the reaction to this Mexican issue.

"May I be one of those to congratulate you on the swellest issue of an architectural magazine that I have ever seen?"

—PERCIVAL GOODMAN.

Percival Goodman, Inc.
Architects
New York, N. Y.

• • •

"Just a line to tell you how much I admired the last issue of Architectural RECORD which was devoted to Mexico. This is a very distinguished piece of editorial work. . . . Cordial congratulations."

—PHILIP N. YOUTZ,
President.
The American Federation of Arts
Washington, D. C.

Such is the tone and naturally we are not displeased. Admirers of the work may be glad to know that it has been published, with additions, in book form. Copies are available, at $3.50 each, from RECORD's book department.

▲

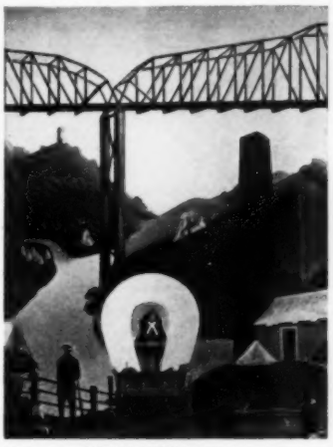
Art in America

SOME DO and some don't take naturally to Mr. Kiesler's subtle expositions under the title of "Design-Correlation." Even if he does make you stand on your head to read an occasional caption, it pains him as much as it does you. He does it for a reason. And once you are in an upright position, your head clears and you generally get the point. All of which is not irrelevant to what follows, provided you read his critical scoop in the February RECORD on the mural of Bertrand R. Adams. Even if you didn't, you'll probably relish reading these excerpts from a letter sent by this truly American artist to this truly international critic:

". . . The Spring is a bit late in arriving here this year and in consequence of that my working hours at farm work have been quite long—5. A.M. to 9 P.M.

"You ask what I am working on—in answer to this I regret to tell you I haven't started any new work since the completion of the large mural in March. The strain of alternating between Art work and heavy farm work, together with humoring the hired hand, were tasks that left me well nigh exhausted at the outset of this year. . . .

" . . . it might be well for you to know I am a PATIENT PLODDER. . . . It seems I can never leave a piece of work alone as long as I can find things that should be improved.



Courtesy Whitney Museum

"It is not uncommon in my case to spend all the way from 300 hours to 500 hours on an ordinary easel painting.

" . . . my approach to painting is more of a Scientific analysis and synthesis, than an Artistic and Historical procedure. . . .

"You may be interested in knowing the germ-idea for my Dubuque Mural is related back to one of our pioneer relatives. On their Westward march over the grassy plains, I am told the young wife was frequently in the clutches of despairing homesickness, and that she often walked a distance back towards home each morning, before the men were ready with the schooner to make the day's journey on West. Well, this incident seemed fitting as a nucleus for my historical mural, and I have the lady in the covered wagon writing with quill to her homefolks. Then too, I thought this would be more in keeping with a Post Office Mural. . . .

"In closing, I again thank you for the encouragement and inspiration you have offered me."

Yours in Friendship,
BERTRAND R. ADAMS.

Webster City, Iowa
April 18, 1937

▲

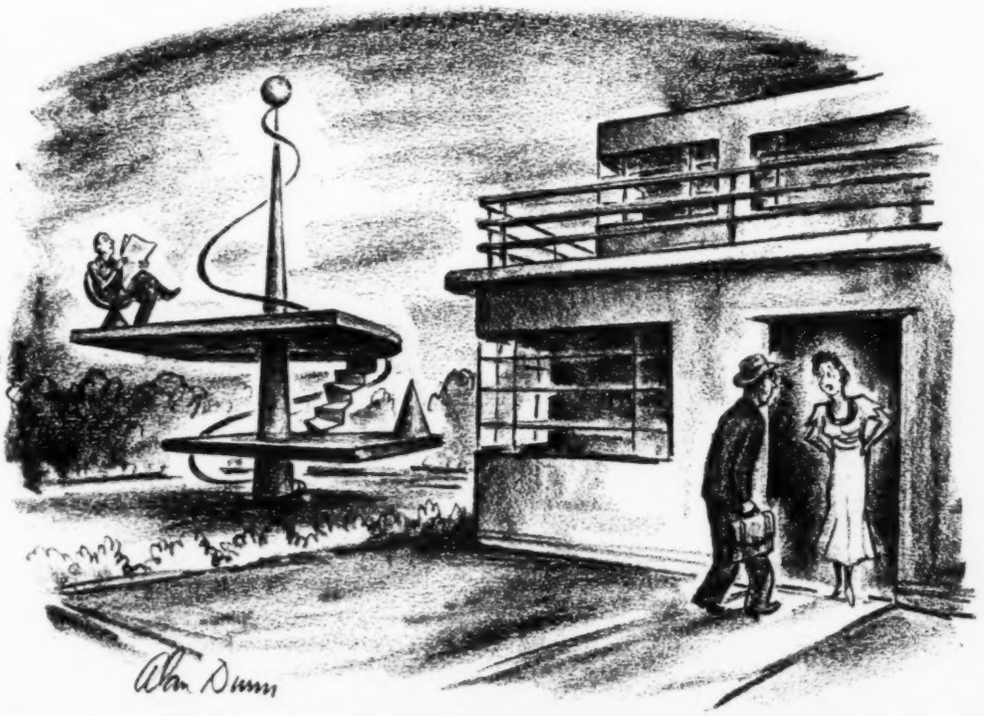
Staff Notes

CHAUNCEY L. Williams, vice president of F. W. Dodge Corporation, sailed May 19 to participate in the European Laboratory Tour sponsored by the National Research Council . . . Thomas S. Holden, editorial director of the RECORD, vice president of F. W. Dodge Corporation and president of the New York Building Congress, addressed a meeting of the Boston Building Congress on May 11 . . . A. Lawrence Kocher, RECORD editor, will sail for Europe July 10, as a delegate appointed by the U. S. Department of State to the Eighth International Congress of Design and Applied Arts at Paris, July 29 to August 5. He will also visit London, Amsterdam and the Paris Exposition.

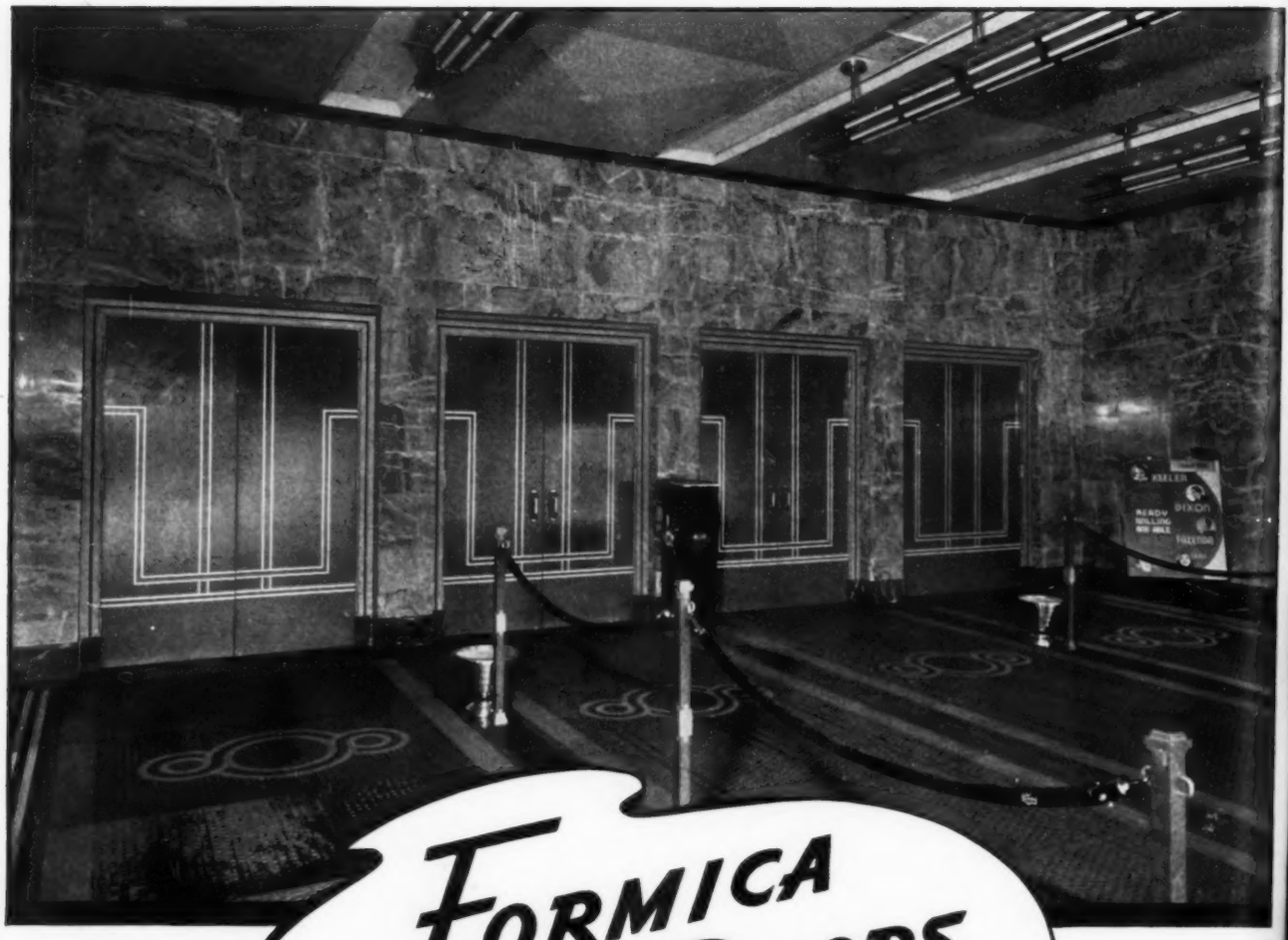
▲

Hospitals for B. T. in July

Building Types, one of the RECORD's "three magazines within a magazine," will focus on hospitals in July. Some of the features included will be a review by Dr. Haven Emerson (College of Physicians and Surgeons, Columbia University) of his recently completed, nationally significant hospital survey for New York; an article on hospital design by Charles Neergaard, hospital consultant; and a bibliography especially compiled by Harry S. Robson, A.R.I.B.A. This B.T. study will be edited by R. Stanley Sweeley, New York architect.



"Well, we're dated!—that abstractionist next door built *his* house in space-time!"
—Drawn for the RECORD by Alan Dunn



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ARCHITECTURALLY SPEAKING

by

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WHAT has happened to Two-Speed AC? It has been superseded by UMV. Sounds like more alphabetical bureaus? Let us explain.

Two-Speed AC is elevator parlance for an elevator machine that operates directly from alternating current. Its versatility is limited to just two speeds. Its usefulness is restricted to slow speed, geared, single-wrap traction. Its maximum speed should not exceed 350 feet per minute. The service it gives is hardly up to today's standards.

UMV is short for Unit Multi-Voltage. Or, in plain words, an elevator with a direct-current motor that receives its power from an individual motor generator. This generator changes current —regardless of its characteristics—into ideal direct current for that motor. This new, modern, and more flexible equipment is available at a price comparable to the old Two-Speed AC.

More important, the Two-Speed AC machine now in use can usually be modernized to UMV *at reasonable cost*—because it is no longer necessary to scrap a large portion of that machine.

The *credits* from the change-over are: Smoother, faster, quieter service. Less wear and tear on the apparatus. Usually a nice saving in power consumption. Lower up-keep costs. The only *debit* is the moderate cost of the modernizing.

This is an important advance in elevatoring, because one of the big modernization problems has been the geared Two-Speed AC machine. And because more and more the available current supply, today, is alternating.

And by the way, the occasion will be rare indeed where modernizing to UMV will require more machine room than Two-Speed AC.

UMV opens the road to economical modernization possibilities. Many a building has Two-Speed AC that can (and should) be changed to UMV.

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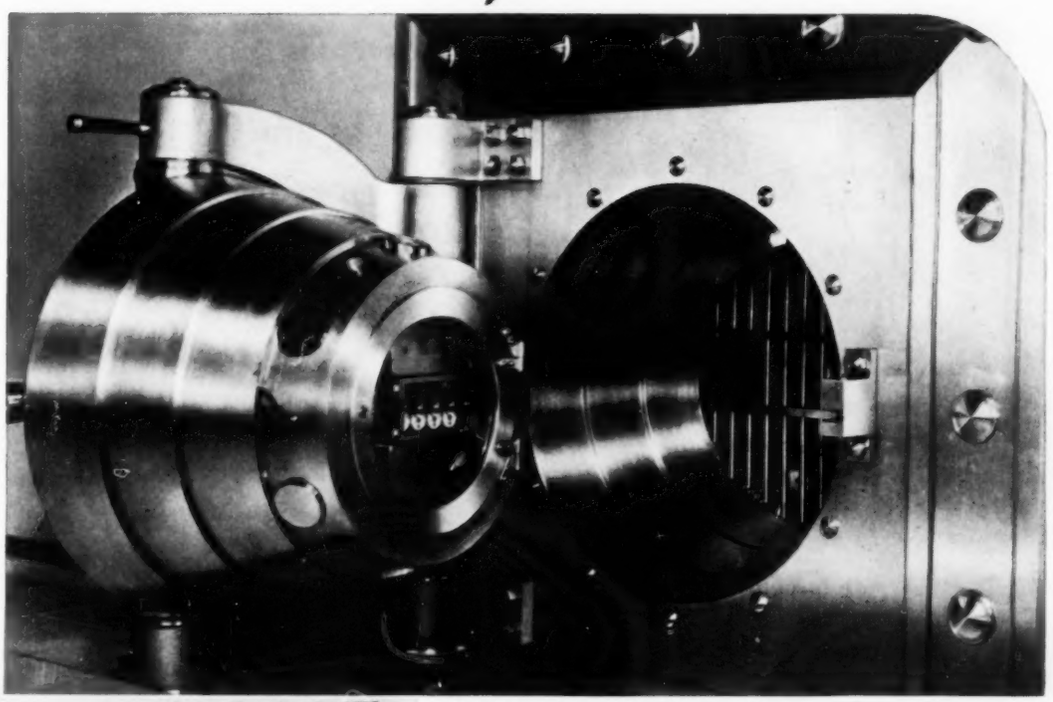

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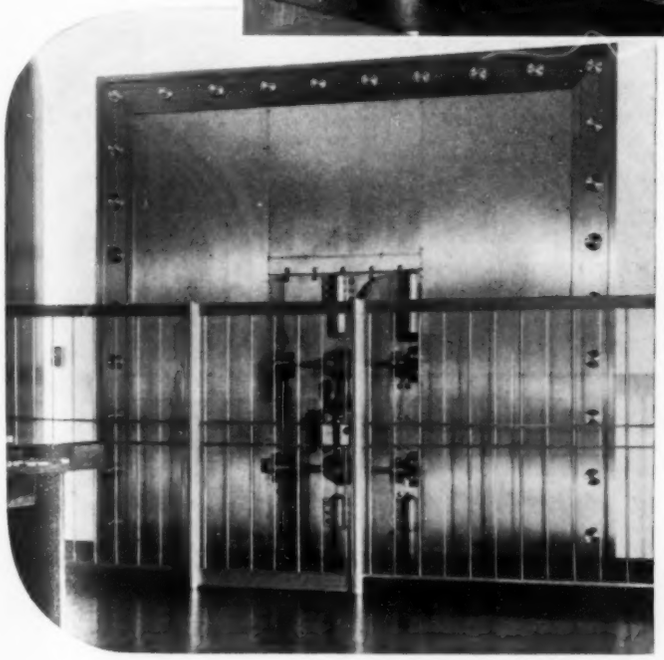

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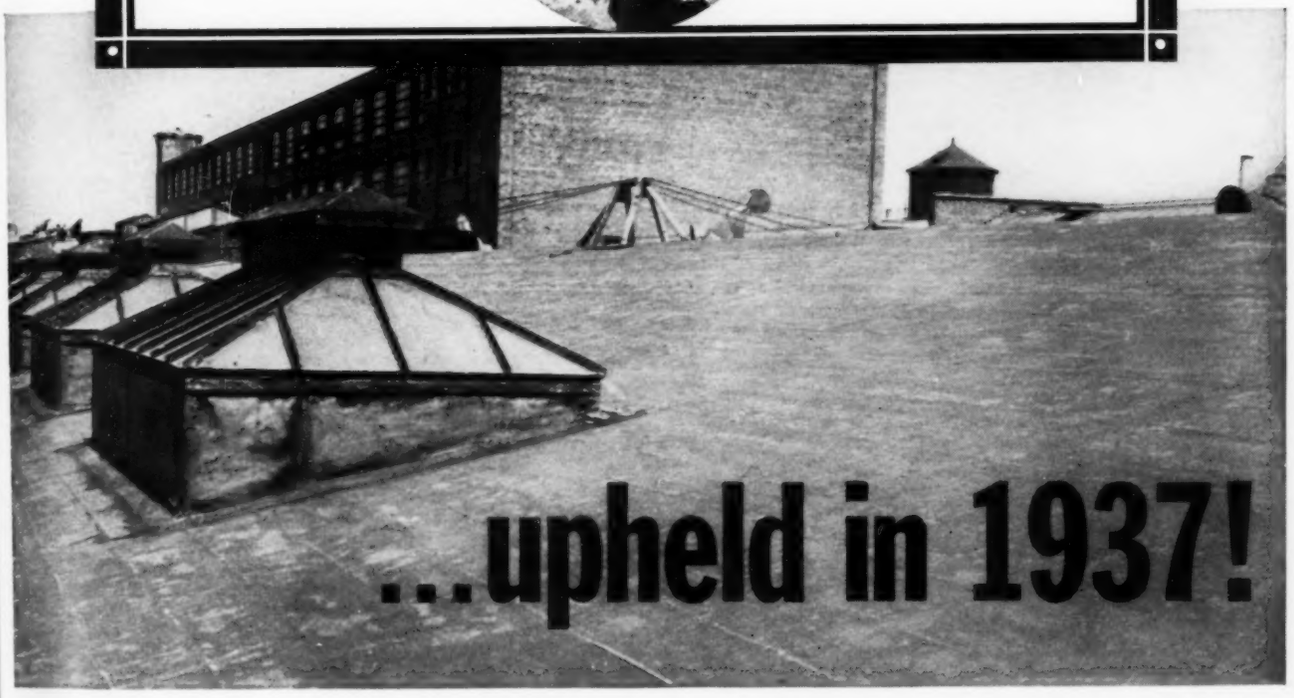

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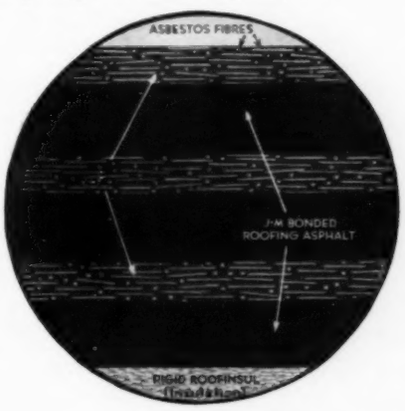

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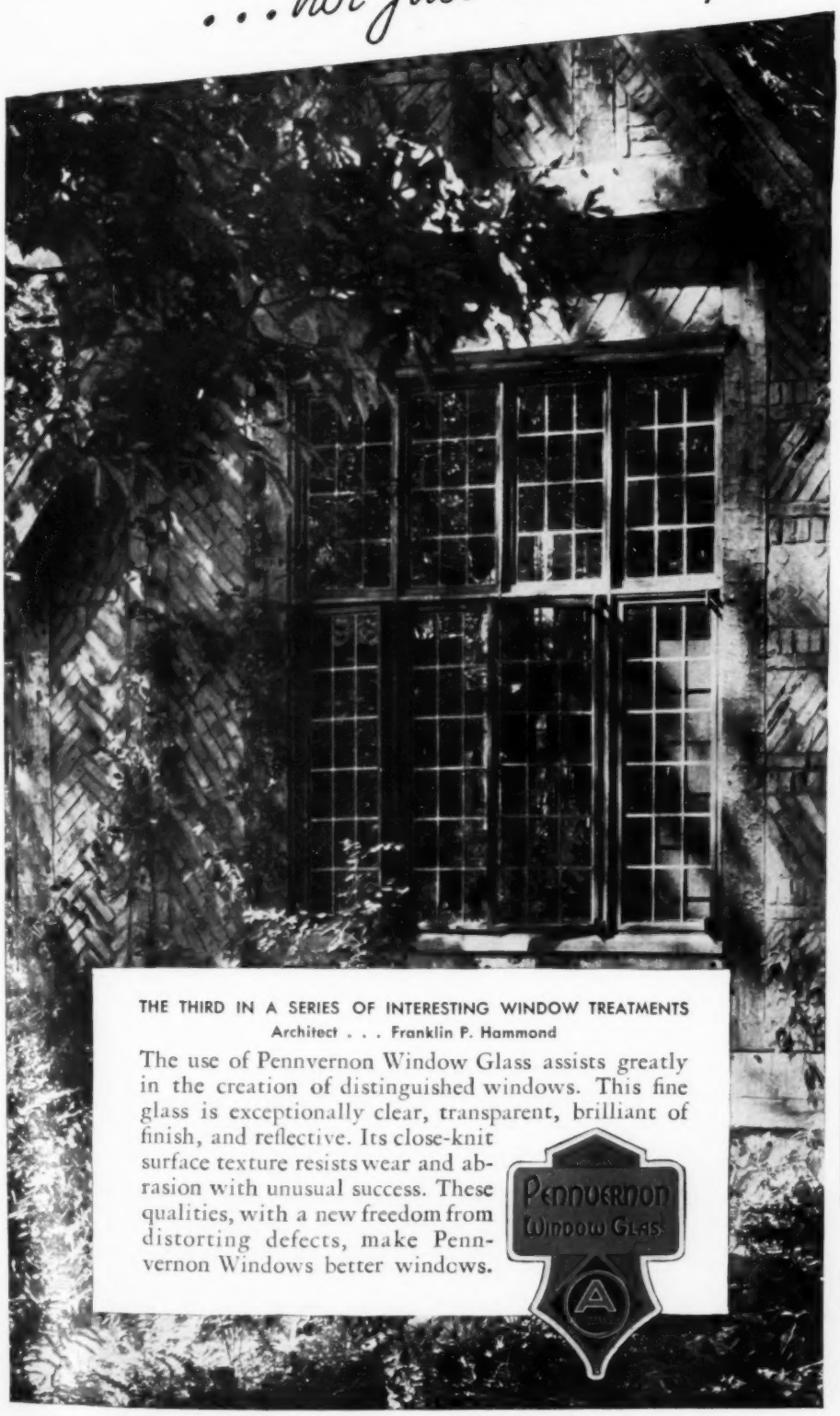

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Architect . . . Franklin P. Hammond

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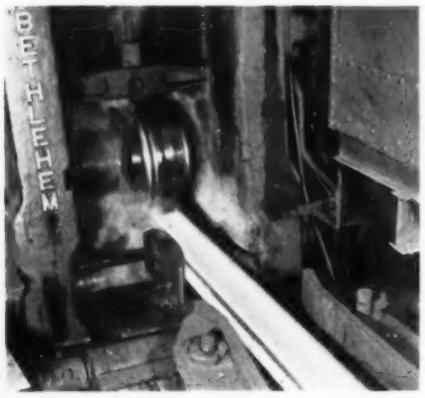

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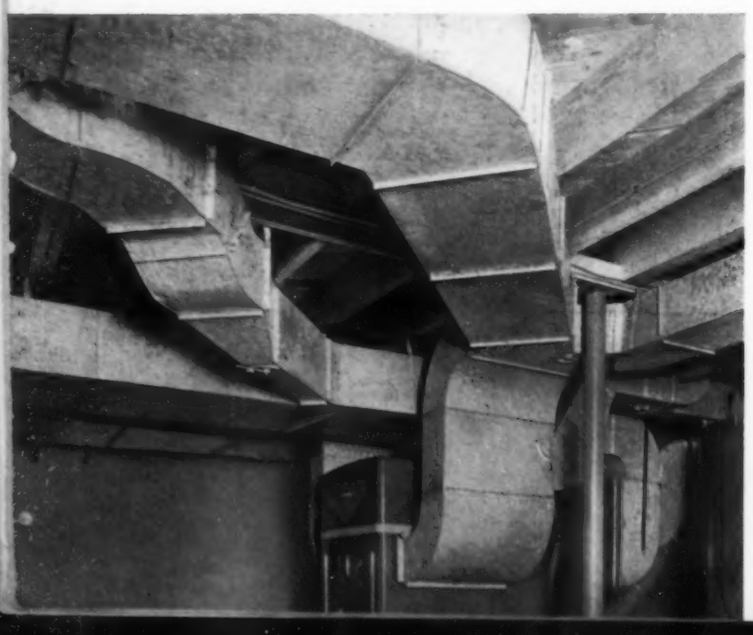

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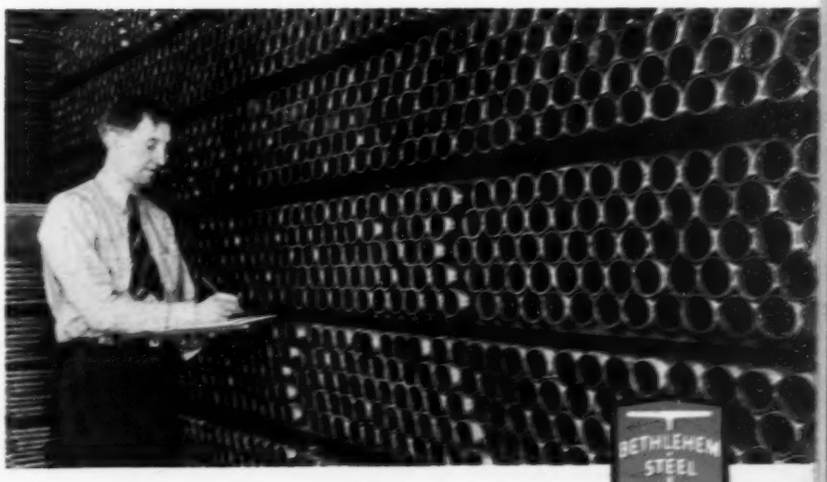

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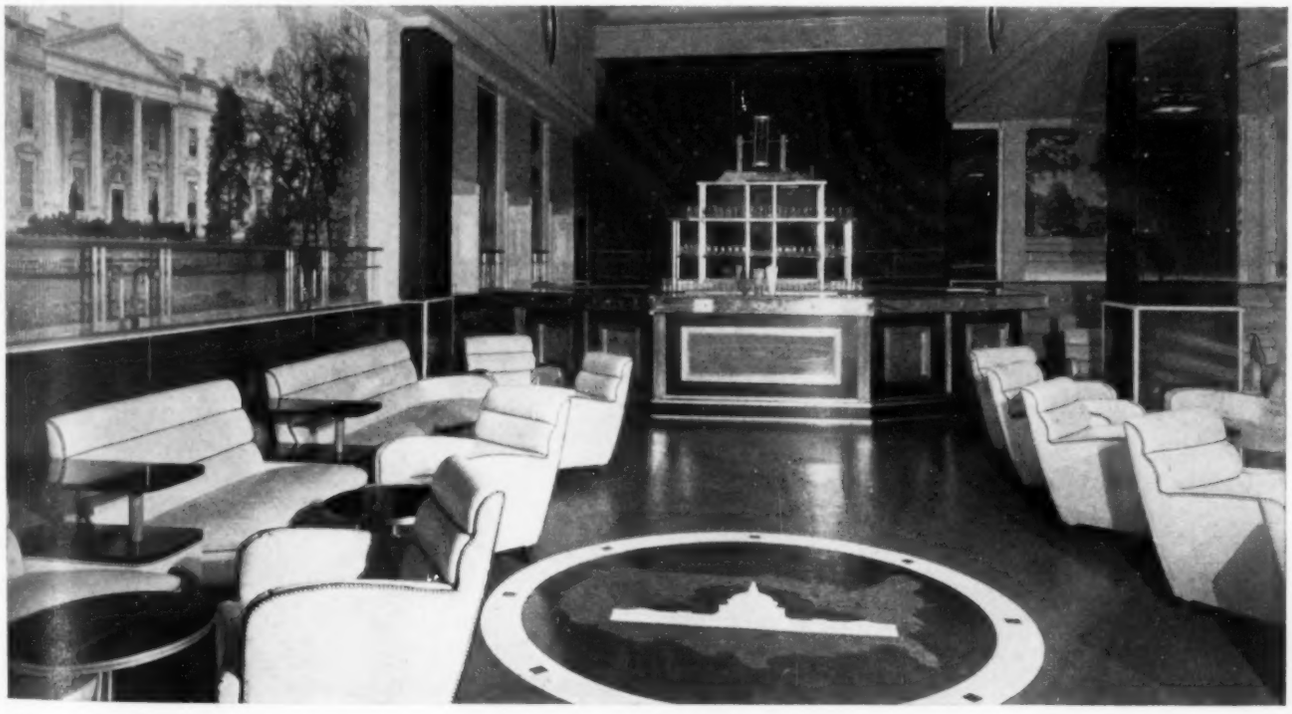
Here's a "Cocktail" in Color and Charm

ALL INGREDIENTS IN THIS HAND-LAID FLOOR ARE DESIGNED TO PLEASE PLAY-TIME PATRONS

Truly intoxicating in its beauty is this hand-laid floor of Sloane-Blabon Linoleum. It graces the cocktail lounge of the Wardman Park Hotel in Washington, D. C., and attracts patrons who enjoy color and charm in their leisure moments.

Surpassing even a "pousse cafe" in vivid coloring, this floor harmonizes with walls, furnishings, and furniture. The field is bright Terra Cotta, individualized by a special linoleum inset figure. Here you find a linoleum cut-out of the Capitol Building in Clear White with a cloud effect in Azure Blue and a United States outline map in Burgundy Red. The background features Azure Blue, circled by a border strip of Clear White dotted with Azure Blue squares.

Just as custom-made floors of Sloane-Blabon Linoleum can contribute individual beauty to any cocktail lounge, smart retail store, or tavern room, so they can help you enhance the charm and harmony of any type of residential or commercial decorative design. Equally important, they provide comfort, convenience and economy. They are warm and resilient—easy to clean and keep clean—last almost a lifetime.



A hand laid floor of Terra Cotta linoleum with a colorful inset figure features the Wardman Park Hotel cocktail lounge in Washington, D. C.

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BUILDING NEWS

Who would cut the cherry tree? I would, says the Jefferson Memorial Commission; I would with my little hatchet.

Neither "style, system, dogma, formula, nor vogue," explains Herr Gropius to the young ladies of Wheaton College.

French utilities paid for the Palais de l'Electricité, Mallet-Stevens designed it, and Raoul Dufy adorned it with the world's largest mural.

Not figuratively but literally "Greek" is Pittsburgh's latest; and it's dedicated to science.

Mr. Hershey's hockey team plays on pink-and-green ice under America's largest single-span concrete arches.

51,894 applicants for 21,065 apartments, PWA's Howard Gray reminds us.

Miscellany: 3 new factories. 6 new paints. 7-room house wrapped in cellophane. . . .

ARCHITECTURAL Record

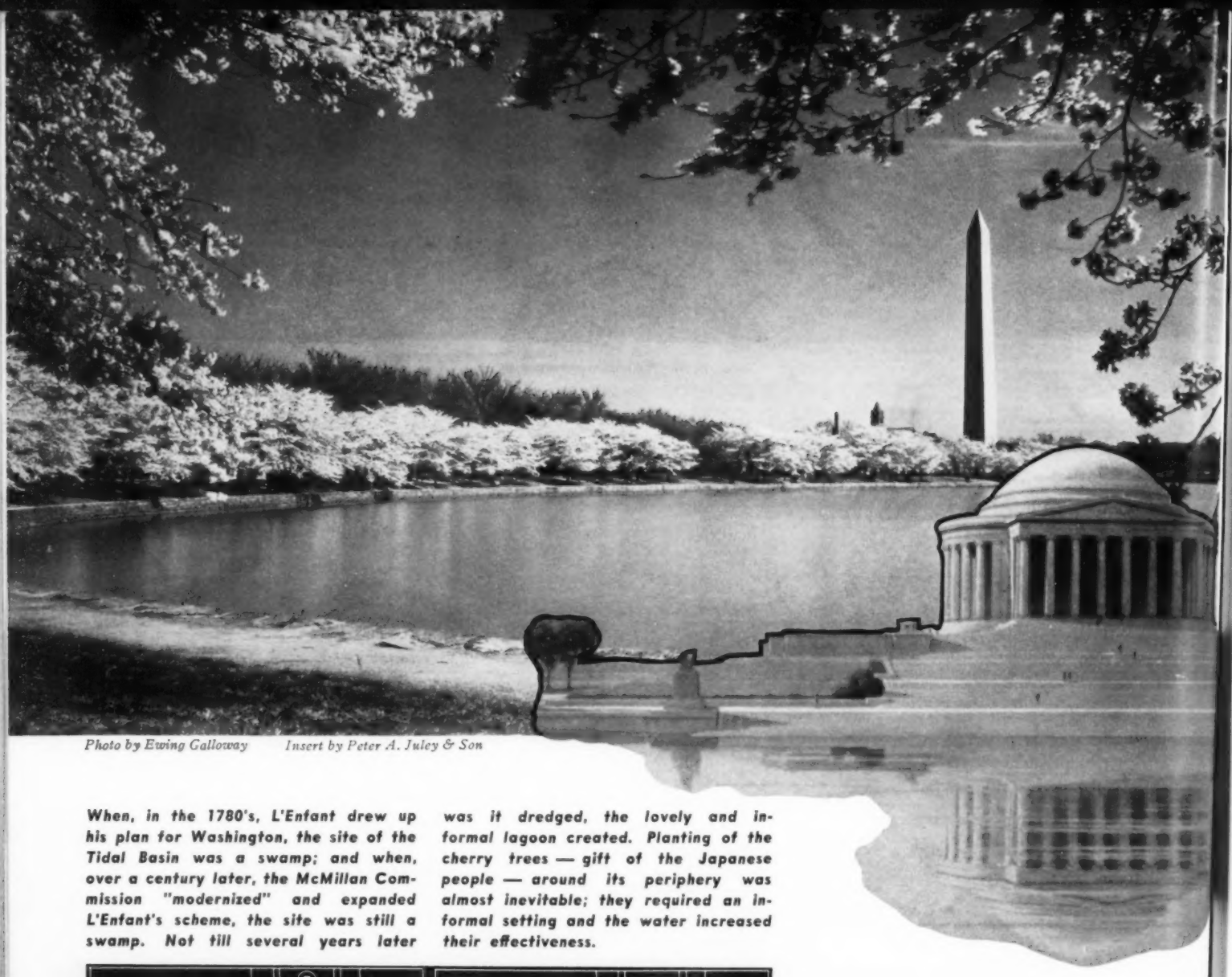
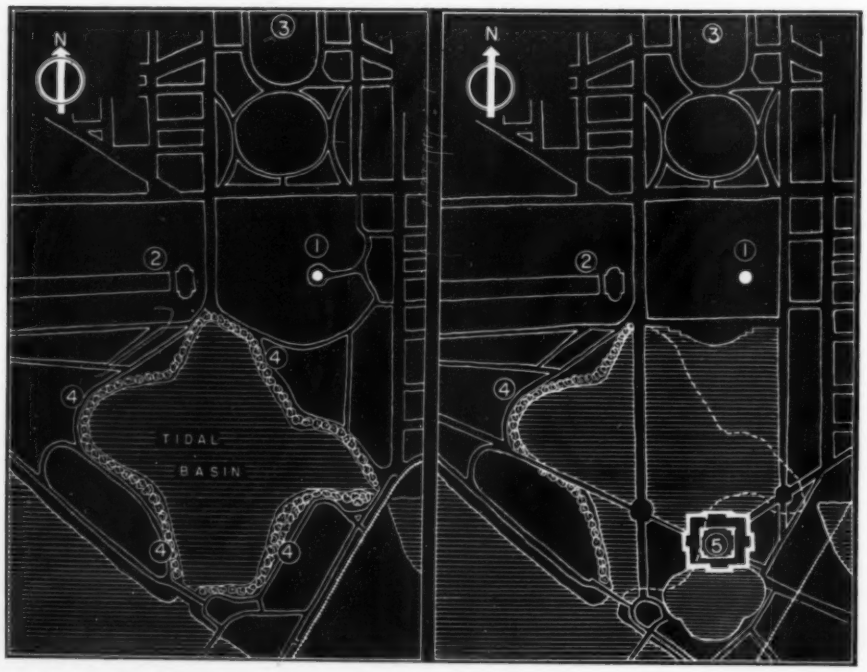


Photo by Ewing Galloway *Insert by Peter A. Juley & Son*

When, in the 1780's, L'Enfant drew up his plan for Washington, the site of the Tidal Basin was a swamp; and when, over a century later, the McMillan Commission "modernized" and expanded L'Enfant's scheme, the site was still a swamp. Not till several years later was it dredged, the lovely and informal lagoon created. Planting of the cherry trees — gift of the Japanese people — around its periphery was almost inevitable; they required an informal setting and the water increased their effectiveness.



1. Washington Monument. 2. Lincoln Memorial Pool. 3. White House. 4. Cherry Trees. 5. Proposed Jefferson Memorial.

The Basin as it is today (left) and as it will be if the accepted design is carried through (center). The Basin will be considerably expanded, symmetrized by means of a causeway, and a new and formal reflecting pool created between the Memorial and the Potomac. Since the Washington Monument is off axis with the White House, it is proposed to shift the center of gravity of the Monument park by means of planting. The scheme also involves diversion of traffic from the present bridgehead and relocation of the Southern Railway tracks.

JEFFERSON MEMORIAL RAISES STORMY DISCUSSION

Proposed Destruction of Cherry Trees Attacked and Defended

The "battle of the century" raging over the accepted design for the Thomas Jefferson Memorial last month reached new heights in the nation's capital. So great was popular opposition to the project that the 12-man Congressional Commission, headed by Tammany's John J. Boylan, was forced to call congressional hearings on architect John Russell Pope's plans for the $3,000,000 memorial. While attacked (and defended) on a variety of grounds—its cost, its design, its use, the secrecy surrounding the selection of its architect—the Memorial was most criticized for its site—the center of Washington's famous "cherry tree" Basin.

D.A.R. protests

Central to the discussion of the site was the problem of the cherry trees—over half of which would be lost by the replanning of the site—and it was around this point that firing was heaviest. Reminding us of "international understanding" between U. S. and Japan, the D.A.R. passed a resolution opposing any project "that will in any way lead to the removal and destruction of these trees." And the Washington Board of Trade, mindful of the tourists that each spring flock to see the cherry blossoms (213,000 saw this year's festival) went on record as opposing removal of the trees or changing "in any way the contours of the Tidal Basin." Senator Elbert Thomas, member of the Commission who originally opposed the Basin site, said the trees constituted "one of the finest monuments in the world." Said the *Washington News*: "To achieve a balanced and formal regularity—suitable to Louis XIV's Versailles but totally alien to everything for which Jefferson stood—the name of the latter would be associated with an act of landscape butchery certain to bring denunciation from every quarter of the Union."

When is a cherry a cherry?

But defense of the cherry trees seemed definitely to nettle Memorial Commission Chairman Boylan. "Let us analyze these trees," said he. "They cannot correctly be called cherry trees because they bear no cherries. Once a year they blossom, but their blossoms have no fragrance . . . the life of those trees is about twenty years; some of them are pretty old and will have to be replaced soon anyway."

Misinformed on several points is Chairman Boylan. Although no claim that they bear fruit has ever been made, botanists have no difficulty classifying the trees as cherries since, over a period of centuries, their fruit-bearing proclivities were carefully bred out of them. Of the 5 varieties in Washington, 3—the Jonioi, Takinioi and Surugadainioi—are fragrant, according to U. S. Department of Agriculture. And the life-span of the trees is from 300 to 400 years.

The site was opposed on many other grounds, however. Said Francis P. Sullivan, chairman of the A.I.A. National Capital Committee: "It has been repeatedly stated that the selection of the site was based on a desire to complete the L'Enfant plan. This is an obvious error. The L'Enfant plan does not contemplate any structure at this point and L'Enfant himself repeatedly stated his purpose of leaving the view of the river from the White House unobstructed." And the League for Progress in Architecture, in an open letter to the President, said: "The essential point is that L'Enfant, who planned perceptively, intended that the entire south side of the Mall, and also of what is now Potomac Park, should be kept free of important buildings for the very good reason that any architecture seen from the North is constantly in shadow, and therefore merely a silhouette against the sky."

Fiske Kimball defends

Dr. Fiske Kimball, of the Pennsylvania Museum of Art, appeared before the hearings to defend the site, as did the two great-great-grandsons of Thomas Jefferson who are on the 12-men Commission—Hollis N. Randolph and Thomas J. Coolidge. "The McMillan plan named this as one of the monumental sites," said Randolph. Frederick Law Olmsted, sole surviving member of the McMillan Park Commission of 1901 which "modernized" the L'Enfant plan, warned that the Tidal Basin project "was a leap in the dark with failure more likely than success." In the same vein, the American Planning and Civic Association through its president, Horace M. Albright, thought "the Commission could find a more suitable site for the Thomas Jefferson Memorial."

A perennial discussion

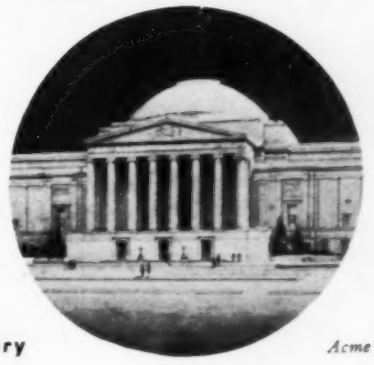
Largely confined to professional circles was criticism of the design of the Memorial itself. There was far less storm, although the classic-vs-modern discussion—perennial in the capital with the classicists consistently winning—again raised its ugly head. Said the open letter of faculty of Columbia's School of Architecture, "we protest that the chief objective of any such

(Continued on next page)

"I'm Emperor Hadrian and that's my temple — if you'll pardon me for saying so, it isn't a bit like you."

"No, Annie, he wasn't an Emperor — he was a Democrat."

Cartoons by Reese. Courtesy "The Washington News"



Central bay, Pope design for Mellon Gallery

Acme

Peter A. Juley & Son

THOS. JEFFERSON ATOP HIS PEDESTAL in John Russell Pope's accepted design.

memorial is to express and to commemorate the character of Thomas Jefferson, the great statesman and educator, who was such a powerful and liberating influence during the formative period of America, not only as a liberal democrat, but also as a progressive architect. We believe that the monument, if built as now projected, would be a lamentable misfit both in time and place." "It is true that Jefferson used the 'classic' style," admits the League for Progress in Architecture. "But in his day the 'classic' was the natural expression of architecture, there was no other. Architecture today concerns itself with the design and use of space in relation to people and their needs. The day of the 'monument' is over."

"Jefferson himself would indorse it"

The Pope design was not without its defenders. In New York City a round robin letter signed by Archibald Brown, president of N. Y. Architectural League, Lawrence White, of McKim, Mead & White, James E. Frazer, Harvey W. Corbett and Julian Levi, stated that "the present design for a memorial follows Jefferson's ideals, and any other style would be ruinous to the Tidal Basin set-up." Back in Washington J. W. Adams said: "The spirit of Jefferson must recognize his own hand work in the masterful and sympathetic design of Mr. Pope. There is no doubt Jefferson would be its chief proponent."

Mumford et al. "incredulous"

Professionals were especially alert to the secrecy surrounding the award of the design commission. In a letter to the *New Republic,* Lewis Mumford, Catherine Bauer, Joseph Hudnut, William Zorach and others view the award without a national competition as "an incredible proceeding for a public monument of such importance" while the Columbia faculty believes that "only by an open nation-wide competition or series of competitions can the creative genius of America find an opportunity of expressing itself as to what the character and form of such a monument should be." Said the League for Progress: "We do not know the circumstances surrounding the selection of Mr. Pope. He is titular author of many buildings of importance. So are many other architects. We do not—could not—question his ability. But we do question the right of whoever it was awarded the work to him, to do so without giving an opportunity for the architectural profession to express itself through competitive programs."

While in Congress—

These views had their repercussions in Congress. Protesting what he termed the "high-handed and star-chamber" methods of the Memorial Commission, California's progressive Rep. Byron Scott prepared a bill to prevent location of *any* memorial in the Basin, while Rep. Allan Tredway urged the House to withhold the $500,000 initial appropriation. Rep. Ostha Wearin has presented a resolution to the effect that the A.I.A. be empowered to hold a national competition, but doubt was expressed that Congress could invalidate any contract between the Commission and Mr. Pope.

$3,000,000 on a monument?

There was relatively little discussion of the Commission's insistence that Jefferson be memorialized by means of a "temple monument" although various suggestions of a stadium, a library or even a university have been advanced. But both Senator William Borah and architect Frank Lloyd Wright spoke against the whole idea of spending $3,000,000 on a monument. "If we want to manifest our sincere respect for the great political philosopher and humanitarian," said the Senator, "we will not at this time attempt to build a $3,000,000 to $10,000,000 monument." Most trenchant of all was Mr. Wright. He characterized the proposed monument as "an arrogant insult" to the former president. Capital architecture as a whole, he said, embodied the "sacrifice of the living spirit to the dead letter," adding up to a "total confession of impotence that no ignorance whatever can excuse to the young America that will be taxed to pay the bills."

Non-profit Memorial Urged by A.I.A.

Exclusion of the profit-motive from the proposed New York State War Memorial at Albany was the nominal demand of a recent resolution of New York's A.I.A. chapter. Urging reverence for those who gave their lives in "defense of their country," the A.I.A. resolution attacked the recently-created Memorial Authority for its plans to "commercialize" the Memorial by including office and garage space in the building.

Largely put through by American Legion pressure, the Memorial act is unusual in that it appropriates no funds for the structure provides only that Memorial Authority must sell bonds to get necessary funds. Memorial must therefore be designed to pay for itself with state as chief tenant.

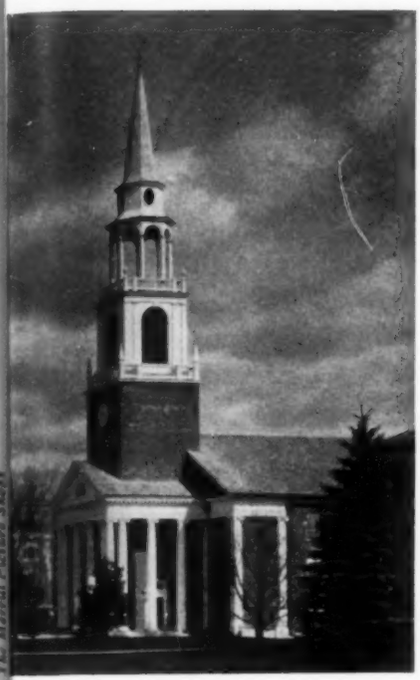
This resolution also urges the Authority to give up its plan for hiring no private architects. "The best interests of the State are not served," it warns, "nor are the best artistic results obtained by such a procedure." Instead, it is urged that a state-wide competition be held for the selection of designer.

Vertical and/or Horizontal Discussed by IFHTP

Among the many conferences in Paris will be the joint congress in July of the International Federation of Housing and Town Planning and the International Housing Association. Reports will fall into three main divisions covering the major aspects of the two associations' work. They will include information as to legal basis for planning, both regonal and national in the various countries, and as to national or state plans in course of preparation.

Comparative merit of two divergent schools of thought in planning (vertical and horizontal) will be discussed from the standpoint of theory and practice. Case for theoretical requirements of a given population will be stated from both sides, while a practical comparison will be made between three different methods of housing a population of 5,000 in a residential quarter of 125 acres, (a) in single-family dwellings of one or two floors high, (b) in multi-family dwellings four floors high, and (c) in "tower" buildings of any desired height.

Reports on financing the small dwelling will amount to a survey of the interrelation of income, building cost, standard of living, and governmental and municipal subsidies. By study and comparison of available information, it is hoped to standardize some of the legal and financial measures necessary for a rational balance between rent and income among the working class.



IN THIS RALPH ADAMS CRAM CHAPEL the young ladies of Wheaton College heard Gropius and Behrendt plead for modern architecture.

"New Horizons in Architecture" Spied, Discussed

Two German architects were among those who recently brought the message of modern architecture to the quiet Colonial campus of Wheaton College at Norton, Massachusetts. To a two-day conference on "New Horizons in Architecture," Wheaton's Art Department and Art Club invited Harvard's Dean Joseph Hudnut and newly-acquired Prof. Walter Gropius; Dartmouth's Lecturer on Regional Planning Dr. Walter Behrendt; Columbia's Townplanner Carl Feiss, and Brooklyn Museum's Philip Youtz.

Tracing the development of the modern school, Prof. Gropius said that "today we are in a position to prove conclusively that modern architecture and design are not the whim of architects or artists hungry for design but the inevitable product of the intellectual, social and technical conditions of our age." And if modern design has been plagiarized, it was not the fault of the Bauhaus, whose object, said the Professor, "was not to propagate any style, system, dogma, formula or vogue but to exert a revitalizing influence on design." Prof. Gropius indicated that the growing complexity of social needs demanded collective planning groups, not isolated planners. "I consider this cooperative principle particularly promising, especially when these groups include engineers and economists." In conclusion, he pointed out that good architecture inevitably depended upon "the systematic solution of the great problems of national planning"—especially on the elimination of difference between town and country.

Grave, middle-aged and direct, Herr Gropius speaks a perfect Oxford English, carries everywhere a Leica camera, is much interested in early New England architecture and American building technology. Best known as Director of the ill-fated Bauhaus, he avoids all reference to its present status [as a new pitched roof, it now houses a Nazi training school for domestic servants].

Get thee behind us, Tradition!

Speaking on a more theoretical and broader plane, Dr. Behrendt pointed out the close coincidence between change in design forms and social and political forms in general. "Our time, there is no doubt, must be characterized as a period of crisis. We are living on the border line between two ages. A world of obsolete forms and institutions is coming to an end—another slowly struggles into existence." It is not surprising then "that the form of modern building, in the present stage of its development, may still be somewhat unfinished and crude. (It) is still in the experimental stage, resembling in its tentative nature, the unsettled age in which it arises. However, without experiments, we will never have progress." Repeatedly Dr. Behrendt warned against slavery to tradition, which "proves to be alive only when we have it in back of us, driving us forward."

More theoretician than builder is Walter Curt Behrendt; Associate Editor of "Frankfort Zeitung" in the days when it was one of Europe's great papers, Behrendt has written widely on housing, finance, town-planning. Most recent work: Modern Building, April 1937.

Sees disastrous effects

In a long and detailed discussion of "Recent Trends in Housing and Planning," Carl Feiss, head of Columbia's new Town Planning and Housing Division, traced the development of American housing technique to date. Dwelling with special emphasis on the disastrous effects of the speculative subdivision of land, Mr. Feiss said that "the forces which were building America were at the same time destroying it." He too emphasized the inseparable connection between progress in architecture and progress of planning in general.

Stairs, columns, taboo

Nineteenth century art, said Philip Youtz, speaking at the closing session of the conference, never received more apt or pungent criticism than at the hands of Thorstein Veblen, who said that the patronage of art by the wealthy constituted "only another form of conspicuous waste." But current concepts of the place of art in community life are rapidly changing, according to Mr. Youtz; "indeed, it may be taken as axiomatic that community participation in any creative effort is essential."

President of American Federation of Arts and Director of Brooklyn's remodeled Museum of Art, Mr. Youtz has done much to make art a vital factor in everyday life. Pet peeve: Classic museums with monumental stairs, inflexible interiors. Pet story: Egyptology exhibition be staged in a Philadelphia branch museum, where local undertaker offered embalmed corpse to lay alongside Egyptian mummy, demonstrate progress in the art.

Princeton to Sponsor Round Table Discussion

Princeton's School of Architecture will this month inaugurate an Architectural Round Table—a conference of practicing and student architects which it hopes to make an annual end-of-the-year affair. An informal extension of curriculum, open only to post-graduates, the round table is designed to provide "an opportunity for both young and old to discuss informally problems and opportunities of contemporary architecture," according to M. C. Branch, Secretary. To this year's conference has been invited a group of well-known educators, architects, town-planners and engineers who will guide the various discussions on education, new problems, programs, materials and forms.

A.I.A. Meets in Boston

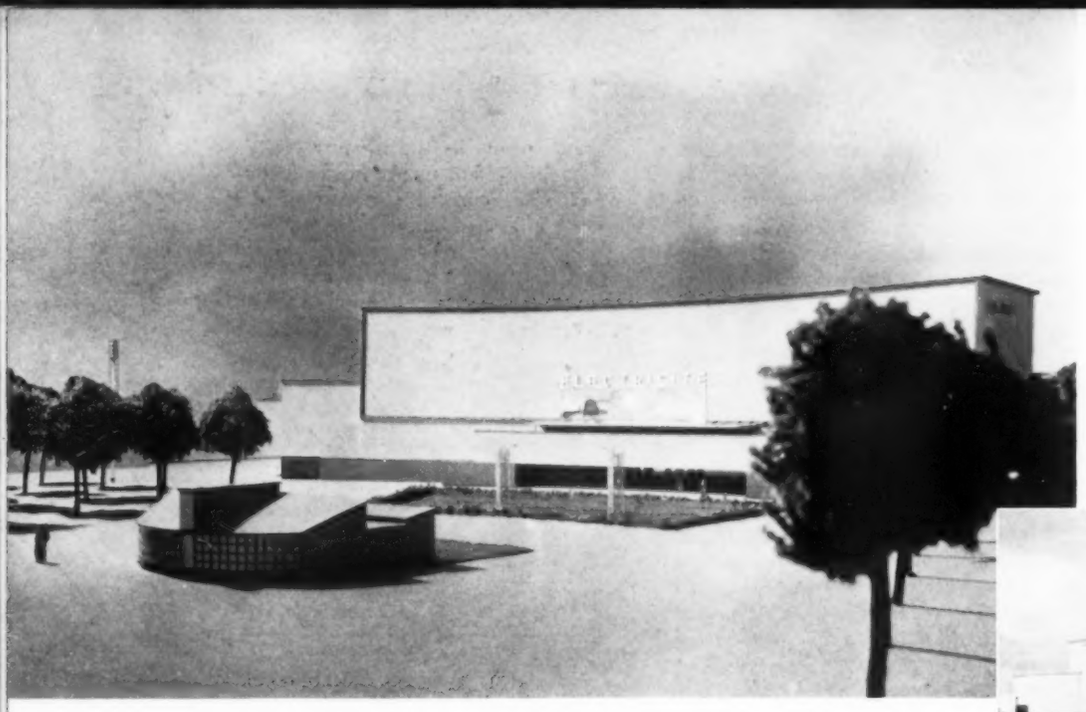
The 69th Convention of the A.I.A. convenes in Boston, June 1-4, with headquarters at The Somerset Hotel, 400 Commonwealth Avenue. Besides the regular sessions there will be excursions to Concord, Marblehead, Harvard College, and interesting buildings in Boston. On June 5, delegates are invited to Providence, R. I., where members of the Rhode Island chapter will be hosts.

Fourth International in Paris

Architects and artists with modern views convene in Paris late this month for the Fourth International Convention of Modern Architects and Artists. Besides a joint meeting with the CIAM and entertainment of various kinds, the delegates will inspect the Paris Fair, hear discussions on "The Architect, the Artist and the Technician." Special subjects for discussion are: modern materials; light; metals; the plan; the modern architect.

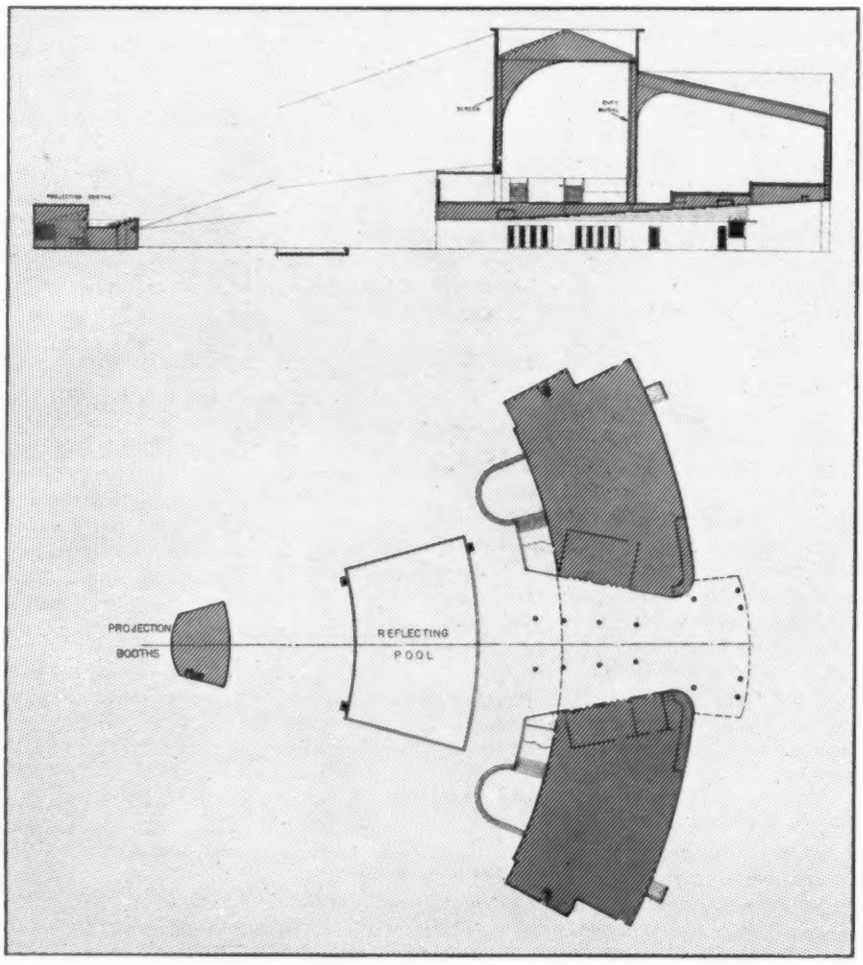
PALAIS D'ELECTRICITE:

Moving pictures are an integral part of this Exposition Facade.



Bonney

The Palace of Electricity, designed by Robert Mallet-Stevens, has a broad wall surface which will be used as a screen for the projection of moving pictures and of paintings by contemporary artists. The sign "Electricité" can be lowered, leaving a blank wall. The projection booths are in the small building at the left. The Palace and its surrounding garden, located on the Champs de Mars, occupy 4,000 square meters.



SECTION: Primary exhibition space in the Palace is concentrated on upper floors. The curved Hall of Honor, flanked by small halls, occupies the front while a theater intersects it at right angles over the open passageway. Dufy mural runs entire length of right wall, Hall of Honor. The exterior screen is served by two tiers of projection booths for both still and moving pictures.

PLAN: With the projection booths as the center, the building is planned at various radii. The ground floor is largely occupied by service, rest rooms, equipment, etc.; the open splayed passage through the center facilitates movement of traffic—much of which may see outdoor movies, not enter the Palais at all.

PARIS VIEWS ELECTRICAL INDUSTRY, PLAIN & FANCY

Designed by Robert Mallet-Stevens and financed by the French utilities trusts, the Palais de l'Electricité opened last month with the latest electrical developments on display. In the Hall of Honor are the portraits of the 128 men and 2 women whose experiments in electricity paved the way for today's inventors. They form a background for the latest achievements in electrical machinery, the largest of which is a 28-ton, 500,000-volt circuit-breaker. In the studio-laboratory a spark generated by radio frequency will jump 7 meters on a wave length of 200 meters. The electromagnetic field set up around this spark will be so intense that an electric bulb or neon light will light without converted current.

One round trip in 1½ millionth of a second is the record this oscillatory spark will make. From the formula $c = v\lambda$, where c is the velocity of light, and λ the wave length, which in this case is 200 meters, the time is derived. Sparks are usually generated by charged condensers. The longest thus created, 18 feet long, was produced on M.I.T.'s Van de Graaf generator.

Georges Claude (experimentor in sea-harnessing) has arranged the exhibits in the Hall of Luminescence where there will be a demonstration of the luminous phenomena due to the electric charge in gas.

The Ballet of the Future, where setting and dancers are created with light, an experiment showing the synchronization of light and sound, and other like exhibitions, will take place in the Demonstration Hall. A series of "Luminous Illustrations" using the 3 primary colors will be produced in the study of form shadow in relation to light and color.

Three American projecting machines of 250 amperes each will be used in 4 small movie theaters for the showing of the films and animated paintings. The huge size of these projections is made possible by 5 supplementary "Hypergonar" lenses, used for the first time. "The History of a Drop of Water," film by Jean Tedesco, will be projected on the mammoth outdoor screen, as will other films made by Jean Benoit Levy, Jean Charles Bernard and Atlantic Film. George Auric composed special music for these films. A new animated design formula called by its inventors, Grimault and Sarrut, "Animated Painting," will have as subject some phase of electricity. The first Moving Picture Art Salon will show projections in color of paintings by contemporary artists. New palettes are required for this kind of reproduction as certain colors present difficulties.

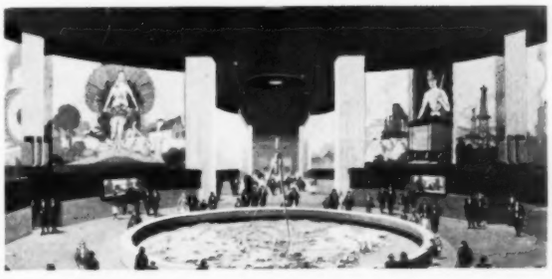
A beacon light of 8 rays, each with 450,000,000 candlepower, the largest in the world, will be shown in the Hall of Honor. It has just been built by Barbier Benard and will be placed in the lighthouse at Ouessant, off the northwest coast of Brittany.

Although public utilities are the organizers of the Palais de l'Electricité the exhibits are of a noncommercial nature—no charts, no models, no merchandise. Like all Exposition buildings, the Palais was designed as an integral unit by the general planning staff.

Bonney

Raoul Dufy painted this mural, "world's largest," to honor the 128 men and 2 women who during the 17th and 18th centuries discovered and experimented with important principles of electricity. Left to right: K. F. Gauss was a German mathematician who worked on the relation of electricity and magnetism. Denis Poisson, Frenchman, investigated the field of electro-magnetics. De La Place was an 18th-century French mathematician. Coulomb is famous as verifier of the fundamental law of electrical attraction, and discovered of a quantitative unit in electrical measurement. Mural is 45' x 200', depicts 2,400 years.

"EVERYTHING FROM A FISH DINNER to a graphic depiction of whaling, sealing, pearl diving or sponge gathering" will be included in the World's Fair Fisheries Building at the New York World's Fair. Architects and Fair officers gathered recently (see above) to sign and award contracts for the Fisheries as well as Food Focal and Beverage Buildings. The latter will present in diorama or panorama form the story of food and drink in connection with the Fair Theme.



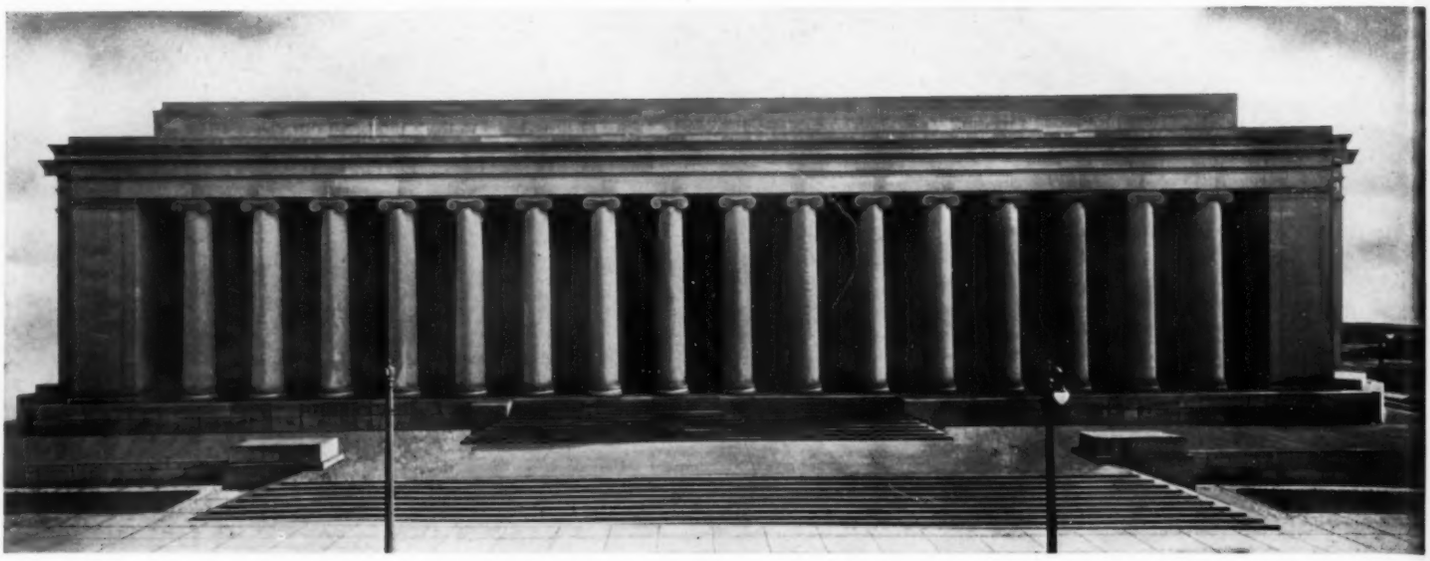
"THE MAKING OF A NATION," twelve murals by Juan Larrinaga on progress in American science and industry, will be the central feature of the 1937 Great Lakes Exposition in Cleveland. The bas-relief in the center of the main rotunda represents the Great Laks area, is 150 feet in diameter. The Exposition, which opened last month to run for 101 days, will this year have a "trailer city."

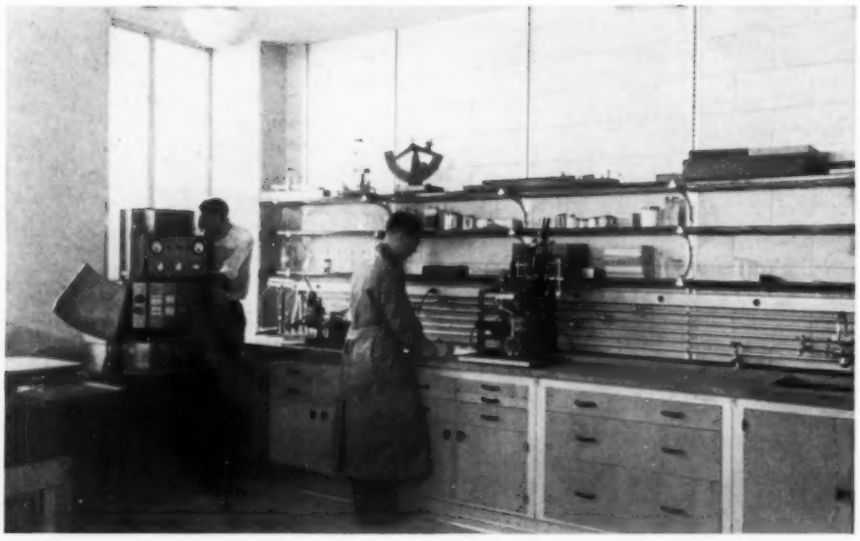
Germany Springs a Surprise

Secretly built on the banks of the Rhine at Düsseldorf, the "Schaffendes Volk" (Creative People) Exposition opened last month, a frank rival to the French Fair. That such an extensive building program could be carried on entirely without seepage of information is evidence of Germany's complete control of the press. The Fair covers 780,000 square meters (192 acres) and has forty-two exhibition halls, thirty pavilions, twenty restaurants and cafes, and a large amusement park. National, rather than international, in scope the exposition intends to show the world what the Four-Year Plan for economic self-sufficiency has done, and will do, in the production of synthetic raw materials.

Emphasized equally with the Four-Year Plan is the demand for colonies, as shown by the "colonial congress" held May 14 and 15, under the direction of the president of the German Colonial League.

PITTSBURGH: THE GREEKS HAD A STYLE FOR IT





Robert W. Tebbs

The laboratories are planned for maximum efficiency.

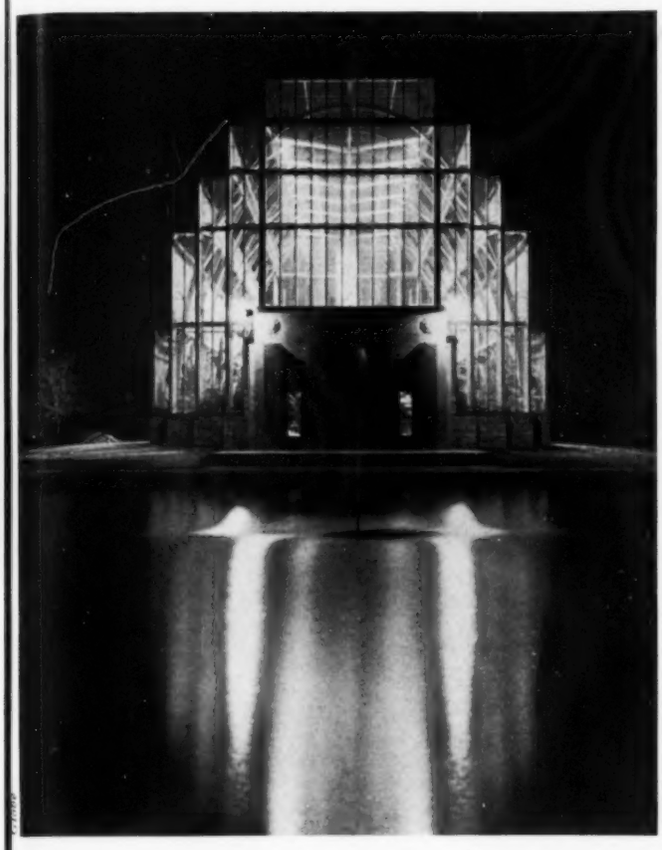
OPENED LAST MONTH WITH A SYMposium on "Recent Progress of Science" was the new Mellon Institute of Industrial Research. Third home for the 25-year-old Institute, the present structure was six years a-building. The basic program—that the new structure be "the most advanced scientific workshop" modern technology could provide while at the same time having external "simplicity, beauty and majesty"—resulted in columns without, light wells within, and forced 3 of the 9 stories underground.

Marked advances in the design and construction of laboratory equipment are apparent. Designed (by the Institute itself) for complete flexibility, the units are built without screws or nails, need only a rubber hammer for dismantling and assembly.

The library boasts carving symbolic of fruitful scientific research.

The library (of over 100,000 scientific volumes with adequate provisions for expansion) is sheathed in English Oak, with details from Wren, Grinling Gibbons and Tyrolean examples.

ST. LOUIS: THEY STUDIED OLD SOL TO GET THIS DESIGN



Andrew C. Bruening

Careful experiments with Missouri sunlight resulted in this totally unorthodox conservatory, designed by Dr. H. R. Grumann, of Washington University, and W. C. E. Becker, city engineer. Elliptical steel arches support a set-back shell, whose vertical elements are double-strength glass (to minimize damage from hail) and whose horizontal elements are conventional roofing. Besides offering access to upper portion of the conservatory (notice catwalks at each setback), the design provides for much better control of light, reduces summer and increases winter sunshine. The conservatory, with its thermostatically-controlled heating system, cost $125,000, provides 2,750 square feet of floral display.

HERSHEY, PA.: "BEARS" NOW SKATE ON PINK AND GREEN ICE

Courtesy Portland Cement Association

The largest single-span concrete roof in America now tops the Sports Arena of Mr. M. S. Hershey's "model" town for chocolate workers. Latest addition to the town's public structures (Lowell Thomas describes Hotel Hershey as "a palace that outpalaces the palaces of the Maharajahs"), the Arena was designed and built by Paul Witmer, of Mr. Hershey's lumber company. The barrel-type roof consists of a 3½" slab carried by eight 220' arch ribs, is cork insulated on the interior. Heating and ventilating is automatic; lighting and public address systems are combined; provisions are made for the multi-colored ice rink on which Mr. Hershey's prize-winning hockey team disports.

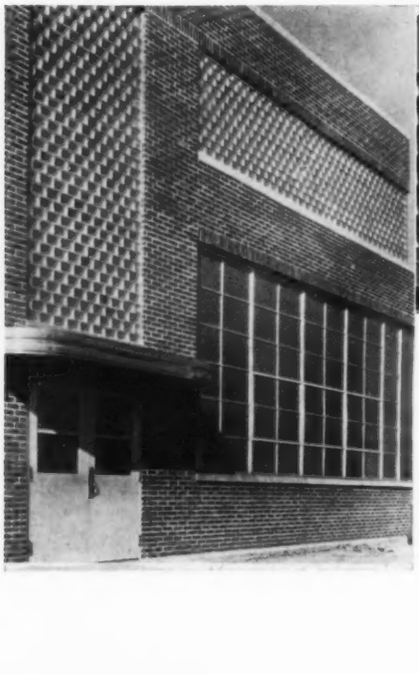
COLUMBUS, OHIO: AMERICAN EDUCATION PRESS

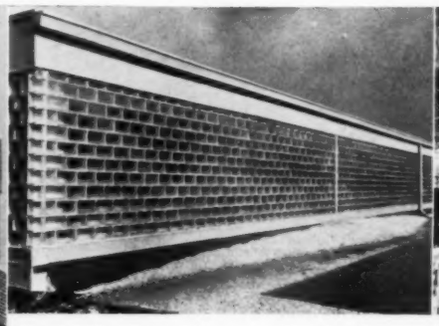
Lavish use of glass brick characterizes this new industrial structure; interior partitions, outside walls—even the skylights—are translucent. The architects, Richards, McCarty & Bulford, used horizontal bands of brick to mark the floor levels without, serve as wainscots within The skeletal structure is of steel.

CINCINNATI, OHIO: KITCHEN ENGINEERS DESIGN AND BUILD OWN PLANT

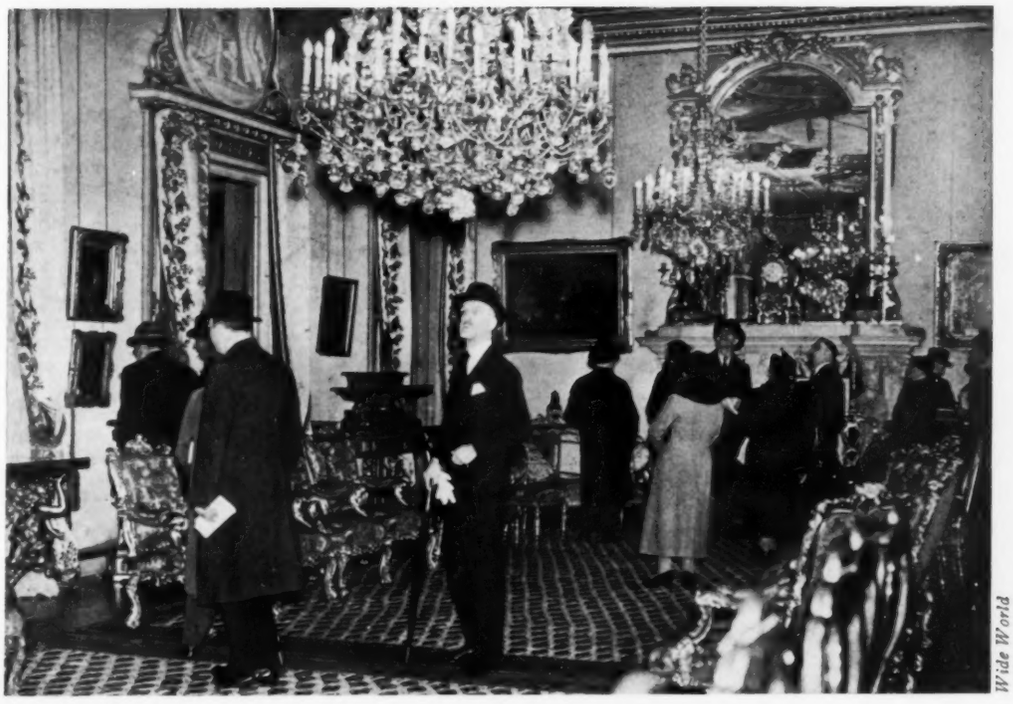
Joint home of John Van Range Co. and Edwards Manufacturing Co., this building was designed by William M. Carleton, chief engineer of the Edwards company, as the first unit of a structure which will ultimately house all operations of both companies. Of reinforced concrete, the supporting columns are set back, floor slabs cantilevered, so that walls are virtually curtains. Exterior walls are of insulated steel and glass; pilasters, ornaments and lettering are stainless steel. H-shaped, rolled steel piles were driven 80′ for foundations, as the site was covered by a 20′ fill. To obtain the depth of 80′, the piles, delivered to the job in 40′ lengths, were arc-welded together.

DAYTON, OHIO: NEW PLANT DESIGNED FOR STRAIGHT-LINE PRODUCTION





Another new industrial plant in Ohio is that of Standard Cash Register, designed and built by The Austin Company. With a minimum of interior obstruction, free-flowing - straight - line operation in the pressroom is possible. All service lines are carried in floor trenches underneath removable cast steel plates. Glass block surrounds the monitors and is combined with steel casements in the walls. Likewise of glass is the vertical panel over the stainless steel entrance canopy.



Wide World

BARON ROTHSCHILD SELLS OUT: Seen on the right are the London crowds which gathered to inspect the ornate furnishings and bric-a-brac of the Rothschild's Piccadilly mansion. Occasion was the sale of the entire lot, collecting which the late Baron spent 30 years.

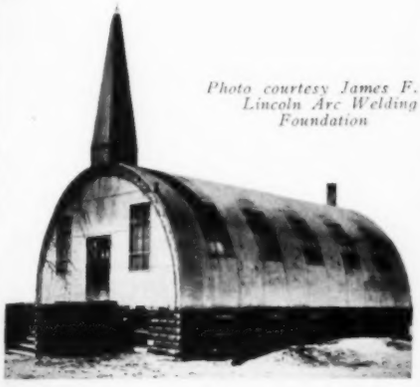


Photo courtesy James F. Lincoln Arc Welding Foundation

FOR $2,000 THIS CHURCH WAS recently designed, fabricated and assembled in a midwestern town. The structure proper consists of 6 semicircular steel sections. The church—including steeple (fore) and chimney (aft)—is all-steel, all welded.

Globe

TORTURED INTO ALL MANNER OF ODD SHAPES, the boxwood in this English nursery succumbs to the topiarist's art, assumes the shape of hoops, swans, cones, teddy bears, baskets, peacocks, etc. Once very popular, topiary is seldom used in present-day landscape design.

Wide World

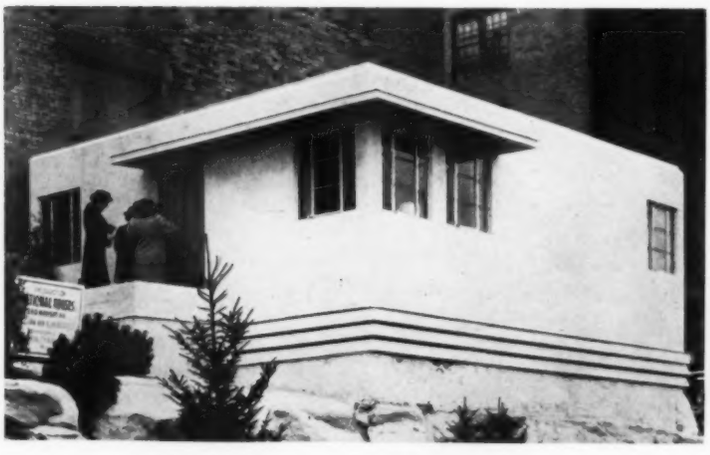
HERE DWELLS JOHN L. LEWIS; but when the Rector's Aid Society of Alexandria, Va., included the C.I.O. leader's home in its spring garden tour, one of the exhibitors — owner of an equally historic house—indignantly protested. Stalemate was only broken when John L. politely withdrew.

Globe

COMMON ENOUGH SIGHT IN RANGOON, this Burmese paddy boat with its exquisitely carved prow is strange to Western eyes. Notice that the carving, although strictly indigenous, bears a startling resemblance to Renaissance work.

Photos courtesy Public Works Administration

***AMERICA'S HOUSING SHORTAGE, ALREADY SERIOUS,** is becoming more acute from month to month, according to PWA's Housing Director, H. A. Gray. Speaking recently before the Senate hearings on the Wagner-Steagall Housing Bill, Mr. Gray recommended that the Bill be passed, the U. S. Housing Authority set up. Of the 1,300,000 units needed yearly, "at least 435,000 units are needed for families of low income," said Mr. Gray — a need compared to which PWA's present program of 21,065 units is hardly a drop in the bucket. "Subsidized public housing," said he, "constitutes the surest method of removing it from competition with legitimate private housing." Citing PWA experience, he pointed to an average rental of $10.38 p.r.p.m., on limited-dividend projects, while on direct-subsidy projects rents ranging from $3.97 to $5.88 have been achieved. Its funds all spent, PWA now awaits congressional action on the Wagner Bill, hastens completion on projects such as those above: Lakeview Terrace, Cedar Central (top) and Outhwaite Homes (lower left), all in Cleveland; Holmes Village in Atlantic City.*



In Panels Two or Four-Feet Wide.

Wrapped in Cellophane with Zipper.

***ON RIVERSIDE DRIVE IN NEW YORK,** National Houses, Inc., recently opened No. 32-B, a 4-room all-steel prefabricated house which sells for $3,000 completely assembled in the New York area. National Houses now faces the task of whipping freight differentials. Taking a leaf from the auto industry, it plans a series of branch factories throughout the country for fabrication and assembly. **MOST NOVEL FEATURE OF A RECENT HOUSE** was its wrapping. Built on Long Island by Levitt & Sons, a crew of veteran sail-riggers fought April winds to wrap 6,000 square feet of cellophane around the 8-room structure and a 14-foot zipper—"world's largest" —allowed entrance to the building.*

HOUSING: 1 STEP FORWARD, 2 STEPS BACK

A.I.A. finds Wagner Act Helps Private Housing

Passage of the Wagner-Steagall low-rent housing bill is urged by A.I.A.'s Housing Committee, Walter R. McCornack of Cleveland, Ohio, chairman. In a letter to Senator Hugo L. Black, chairman of the Senate Committee on Education and Labor, several reasons for A.I.A. endorsement were listed.

"We do not believe that the United States can much longer defer an attack on the question of substandard dwellings for the millions of people in America who are not properly housed . . . many governments have fallen because they have neglected the welfare of a large number of their citizens. We feel that no real advance in housing will be made until some centralized authority (such as that set up in the Bill) is created, which will be in a position to make the proper research and to encourage the formation of housing authorities throughout the United States. The present housing bill decentralizes housing and places it in the hands of responsible local groups where it belongs."

U. S. Housing Authority, as set up under this bill, could issue bonds up to $1,000,000,000 over a 4-year period, loan these funds to local authorities (who comply with U.S.H.A.'s standards) at not more than 4% per annum for not more than 60 years.

"We find from reliable information that there are so many families with incomes below $1,000 who cannot afford to pay rental above $15 per month, that we do not believe the Housing Act will in any way interfere with private industry. In fact, we believe it will eventually act as a stimulant to private capital by setting up a definite line of demarcation between public and private housing."

U.S. Chamber Urges Curtailment of WPA

Recovery problems of the construction industry drew the attention of the U. S. Chamber of Commerce at its annual meeting in Washington. Discussion, under the auspices of the Construction and Civic Development Department, centered around talks by John H. Zink and John McC. Mowbray, Baltimore, Md., and William A. Klinger, Sioux City, Iowa. Industry's cooperation in vocational education and apprenticeship training was Zink's plea, while Klinger urged that day labor construction of WPA projects be eliminated, that Federal appropriations available for such purposes be devoted to the completion of the PWA program—a diversion to public works projects as against straight relief.

New Corporation to Produce Complete Communities

Organized last month to provide complete balanced communities and to produce well-built homes in a comprehensive price range, National Communities Corporation has already acquired property in the New York commuting area. The corporation proposes to establish residential park communities, garden apartments, lake and resort developments, and will as well concern itself with industrial relocation and low-cost housing. Each project is separately incorporated and capitalized, using the capital only to get the properties into operation.

WPA Allows R.A. Use of Non-Relief Labor

Thanks to a new WPA ruling which grants Resettlement Administration a "special labor exemption," Secretary of Agriculture Wallace was last month able to employ nonrelief skilled labor on R.A.'s uncompleted rural projects. Said the Secretary: "In the past R.A. had to depend almost entirely on relief labor in building houses, with the result that a shortage of skilled labor frequently delayed construction and increased costs. Under this new arrangement, we expect to cut drastically the cost of houses and farmstead units. It is possible that we may be able to provide for twice as many needy farm families at the same total cost." By standardizing its housing plans R.A. hopes to bring the average cost of a rural house down to $1,200 in the South and $2,100 in the North.

City Employees Organize for Housing

Over 300 city, state and Federal civil service employees in New York City recently formed a Cooperative Housing Association to foster the construction of a cooperatively owned apartment house. Only families whose total income is under $4,000 p.a. will be elegible for membership. The move, according to Samuel Seldon, Association president, comes as a result of the rapid rise in rents and living costs generally in the New York area. The association plans a modern structure to rent for not more than $11 p.r.p.m.

Impetus was recently given to this type of development by passage in the New York Legislature of a bill authorizing municipalities to grant tax exemption on buildings of limited dividend housing corporations operating under supervision of State Board of Housing.

Wide World

***HOUSING THE AMERICANS:** Living much as they did at the time of Columbus, and heedless of the "civilization" that rings them in, Seminole tribes in the Everglades still dwell in walless, palmetto thatched huts such as that shown above. Everglades National Park, latest addition to the U. S. Park system, in preserving the natural beauties of the area, will probably dispossess the Seminoles.*

Wide World

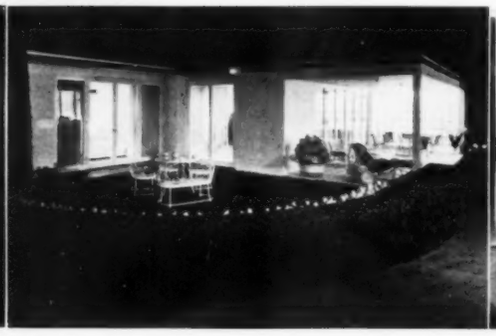
***"UNEASY LIES THE HEAD":** Into his new "assassination-proof" residence recently moved Japan's Premier Senjurjo Hayashi. Built at a cost of $28,000, the new official residence replaces an older building, scene of one of the military murders of last year's Fascist putsch. Until the recent dissolution of Parliament, the Premier lived in the house alone, forbidding his family to join him. Mme. Hayashi does not know in what part of the house the Premier sleeps—so honeycombed is the new structure with "mysterious doors, subterranean passages, secret exits, and disappearing floors."*

SHOWS BOOST "BILLION DOLLAR" INDUSTRY

A veritable epidemic of home shows last month struck this land of the free and the brave. Public interest in home building, judging by attendance, has grown by leaps and bounds during the past year. One characteristic feature of these shows, which differentiates them from the well-known "building show" of the past, is their increasing use of complete "model" homes. This implies an increasing use of building designers, not only for the "homes" but also for individual displays of materials, equipment and services.

Edward Rinker

Edward Rinker

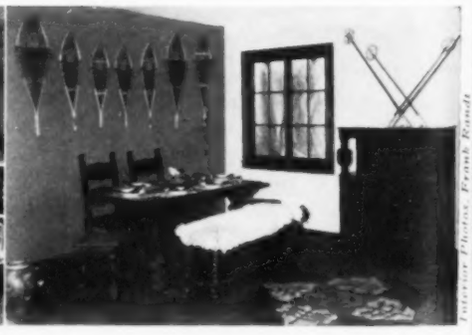


Frederick Blossom

In Chicago these two houses, selected as representative of both modern and traditional trends in architecture, were built for the "Woman's Home Companion" in Marshall Field's Chicago Store as a joint project. The modern house, designed by John Root, architect, is of white-washed brick. A glass brick wall at one end of the terrace is both shelter and decoration. The British Colonial House, designed by Alfred Shaw, architect, also Chicago, is "reminiscent of houses in Tasmania, Australia." It is of brick and has a roof of asbestos cement. Interiors by Marshall Field's staff of decorators.

WOMAN'S NATIONAL EXPOSITION OF ARTS AND INDUSTRIES

Albert Rothschild

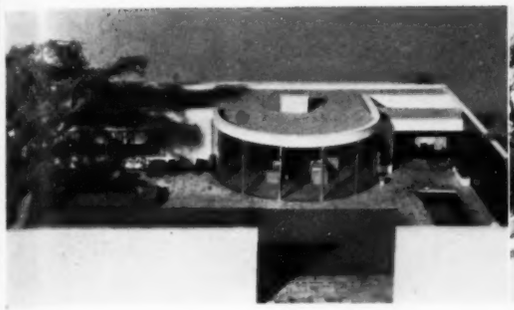


Interior Photos, Frank Randt

In New York's Grand Central Palace, this house, complete except for foundations, plumbing, and heating fixtures, was built recently. Construction was completed in five days. It is weather-tight, although plasterboard was used instead of plaster for the interior, and composition board painted with cement for the exterior. 12 interiors with authentic period furniture were arranged for the Exposition by members of the Decorators Club. A Venetian baroque summer dining room for a penthouse was designed by Hortense Reit. The floor is covered with gray linoleum; walls are bright green. Sports equipment decorates the dining room for a Hunting Lodge. Snowshoes hang against a red wall. Color accents on the adjacent wall are produced by red and blue ski poles. In another corner are skis, fishing pole and basket. The furniture is heavy oak in the early Italian style.

NATIONAL HOUSE AND GARDEN EXPOSITION

Also in Chicago, this "Modern Colonial" house was designed by White and Weber, Chicago architects. Unusually large for an exhibit, this house was shown complete with furnishings and blooming garden.

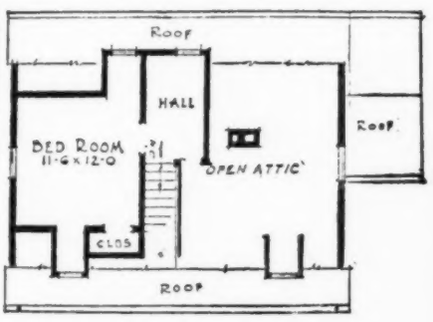


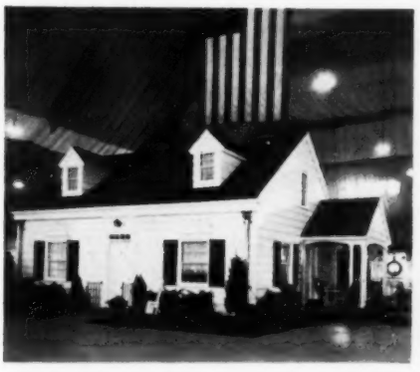
Louis Checkman

NORTH AMERICAN HOME SHOW

In New York the "House of Tomorrow" was designed by Harrison and Fouilhoux, New York architects. By mechanical means, it combines house and garden. At the touch of a button the glass walls of the living room sink into the ground. Other exhibits include the "House of Today" designed by Royal Barry Wills, Boston architect; an FHA model low-cost house designed to meet the need for homes in the $2,000 to $5,000 class; model apartments similar to those of the Harlem and Williamsburg projects; and, in direct contrast, a slum street reconstructed from actual old tenements torn down by the PWA.

NEW JERSEY NATIONAL HOME SHOW

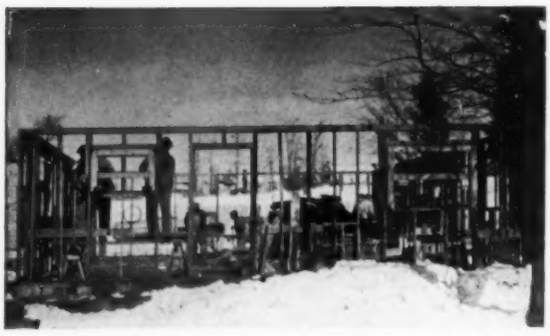




While in Newark appeared a full-scale Cape Cod cottage, built by the Van Ness Corporation of Newark, and designed to sell for between $6,000 and $6,400. The show was sponsored by the New Jersey Real Estate Boards and the Newark Better Housing Committee in cooperation with the FHA, and a wide range of building industries exhibited.

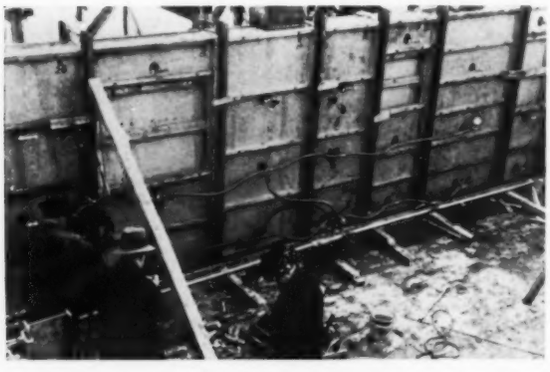
NEW JERSEY PUBLIC SERVICE COMPANY

New Jersey homeseekers viewed with envious eyes "The House Practical," designed and built to demonstrate that "contemporary homes may have the atmosphere of the old and the convenience of the new day." The house shows a Georgian influence, and decoration is carried out in that style, although all modern conveniences are concealed in the walls.



A CONCRETE HOUSE BUILT IN 1 DAY: outside Washington inventor K. P. Billner (Vacuum Concrete Corp., 30 Rockefeller Plaza, N. Y.), gave first commercial application of his vacuum concrete process. Structure begins with temporary wood framing

To both sides of which is fixed sisalkraft paper, wire mesh reinforcing. Use of this paper possible because concrete is almost immediately "set" by application of vacuum.



Plywood forms—4' wide and wall height—are placed, concrete poured and vacuum applied. Forms are held in place by compressive force of atmosphere. Concrete is consolidated by pressure, water taken off by vacuum.

Finished structure is monolithic, with finish bonded to a wall consisting of two 3" elements with 5" air space between. For details of vacuum process, see March 1936, page 239; September 1936, 242.

Sun Spots New Worry for Engineers

Air conditioning may soon involve control not only of temperature, humidity, and composition of the atmosphere, but also consideration of cosmic influences, if Dr. W. F. Petersen of Illinois' College of Medicine is correct. Speaking last month before the Chicago Pathological Society, Dr. Petersen outlined a study which indicated that a "close integration exists between the human population and the changes in the atmospheric environment in which the population lives." Displaying charts which covered the last eighty years, he showed that barometrical upheavals closely paralleled disease outbreaks and peak death rates; and that these barometrical disturbances were in turn correlated with the sun spot cycles. As the cycle reaches its maximum, according to Dr. Petersen, "there is an increased demand on the human organism" which results in a rising death rate throughout the world.

Love Scenes or Murders Send Humdity Up

As far as the air conditioning engineer is concerned "dripping"—not "gripping"—describes the hair-raising melodrama that sends shivers up and down the movie-goer's spine. Evaporation from an adult is normally one-tenth of a pound of moisture per hour, according to Professor Axel Marin of the University of Michigan College of Engineering, but a love scene or a gangster movie sends this amount up 50%. For a dull or mildly interesting film shown to an audience of 1,000 persons, the ventilating system has to take care of 100 pounds of moisture per hour. But just let the G-men "get their men," or engage in a good free-for-all with a gang of crooks, and the ventilating system has to compensate for 150 pounds of moisture.

Conditioned Air Keeps Newsmen Well

A year before air conditioning equipment was installed in Chicago's Tribune Tower in May 1934, a survey of employee absences due to illness was begun. For an average of 2,150 persons on the pay roll, that year saw 2,228 work days lost by 475 employees—an average of five days each. In the year following the installation of the equipment, the toll of work days missed dropped to 1,290 for 345 employees, despite the fact that average pay roll had risen to 2,500. In other words, percentage of employees forced to lose one or more work days due to illness dropped from 22% (May 1933-'34) to 13% (May 1934-'35).

Sterile Air Good for Office Workers

Efficiency of office workers would be greatly increased by having the air they breathe not only heated or cooled and dehumidified, but also treated to reduce its bacteria count, according to A. R. Dennington. Speaking before AIEE's Toronto section, he pointed out that sterilized air for the office worker would release "additional energy for the task at hand instead of battling unseen microscopic enemies." (For recent application of sterilizing equipment, see April 1937, page 96.)

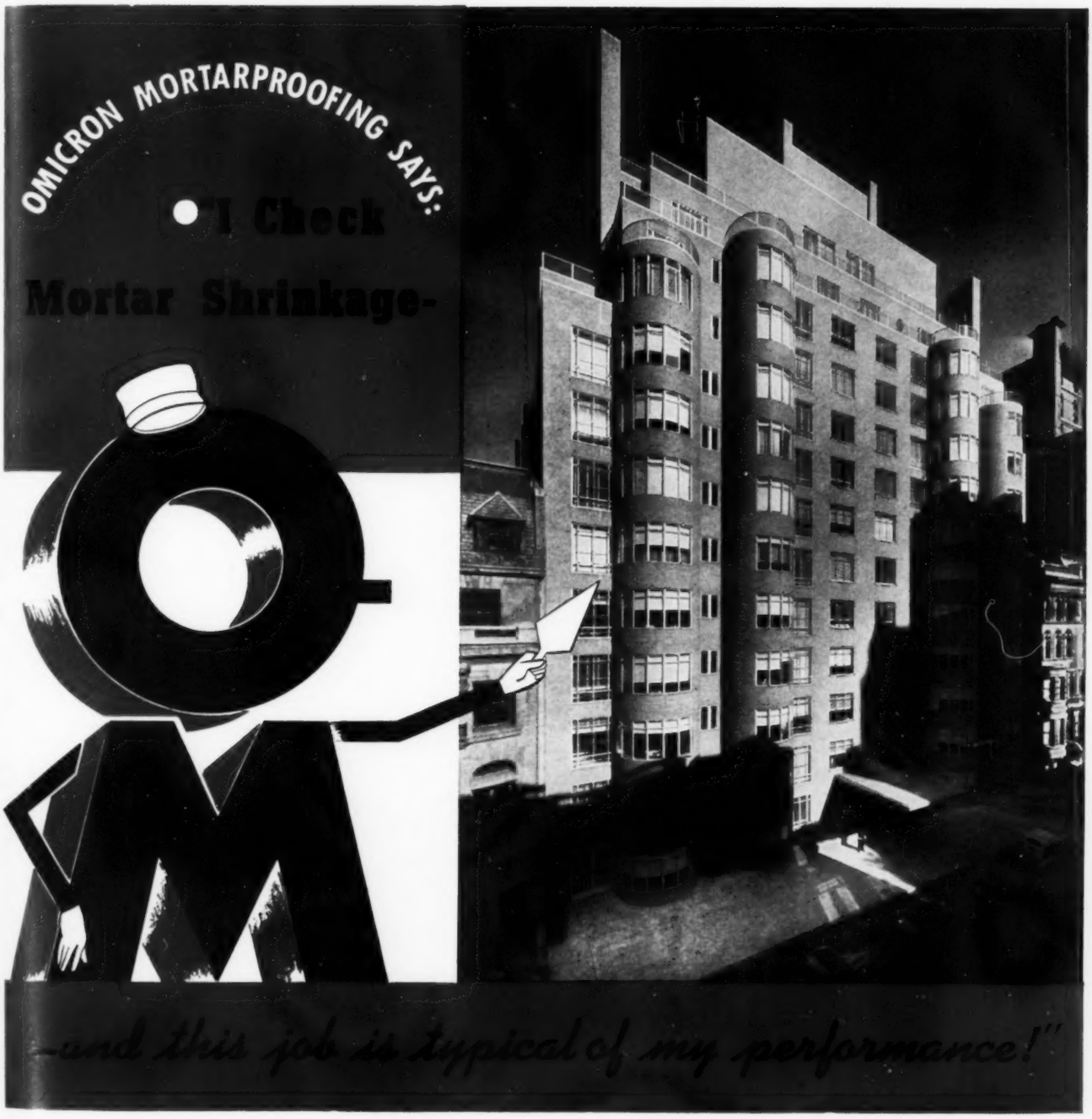
New Reflectometer Eliminates Guesswork

Accurate readings on a micro-ammeter eliminate guesswork in the measurement of reflection factors of all flat surfaces with an area of 3" or more. The meter is part of General Electric's new Light Cell Reflectometer, which differs from previous models in its utilization of light-sensitive cells, and in its instrument for readings. The device consists of a 10-inch metal sphere, painted flat white inside, with two light-sensitive cells set opposite each other so that their surfaces face each other through openings cut in the wall of the sphere. The cells connect with the micro-ammeter mounted on top of the sphere. A metal cylinder attached to the sphere wall has at its far end a small projection lamp with reflection equipment which sends a beam of light into the sphere. The cylinder is swung around so that the light beam falls, at a 30° angle from the normal, on the surface to be measured, and on no part of the sphere. Thus the only light which enters the sphere is that reflected from the sample. The meter then records the reflection factor of the sample.

Visual comparison of brightness is the principle on which other reflectometers operate. Observers who use this type must be experienced, alert, wide awake, for fatigue causes inaccuracies in readings.

World's Largest Plastic Cast by G.E.

The largest plastic piece ever molded is the new Wakefield 1,000-watt reflector, 26½" in diameter, 11½" in depth. The record size up to now was an area of 252 square inches, whereas this reflector has an area of 550 square inches. Designed by Harold Van Doren and molded of Plaskon by the General Electric Company for the F. W. Wakefield Brass Co., the reflector is of value in industrial, office and school lighting.



"I'm *in* the Rockefeller Apartments brickwork mortar, and shrinkage cracks are out!

"I'm famous for greatly reducing excess water in mortar mixtures, hence no bond failure—no cracking—no leaky brickwork. So the splendid investment made in the Rockefeller Apartment structure is amply protected against all the destruction induced by shrunken mortar. Remember—*I build watertight walls!*

"Write me now, for complete list of other recent important Omicron Mortarproofing jobs, and ask for convincing proof of O. M. facts under actual working conditions on your own job!"

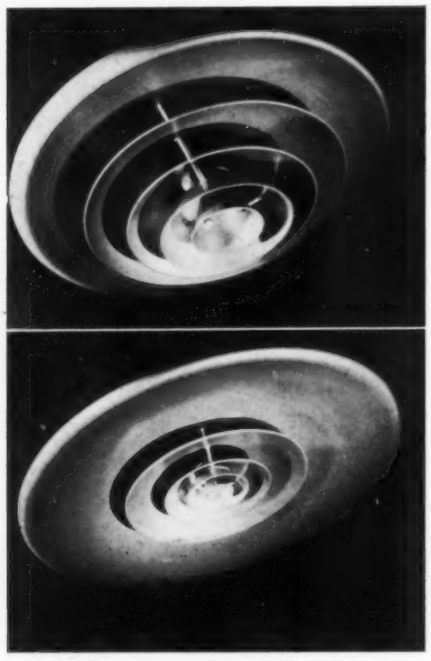
THE MASTER BUILDERS COMPANY • CLEVELAND, OHIO

In Canada: The Master Builders Co., Limited, Toronto, Ontario

The Rockefeller Apartments, New York City. Architects: Wallace K. Harrison and J. Andre Fouilhoux. General Contractors: Barr, Irons and Lane, Inc. Masonry Contractors: Miciwiel Company, New York City. Omicron Mortarproofing used in all brickwork construction to assure weathertight walls. In 1935, Omicron Mortarproofing was also used in the big S. H. Kress & Company, Fifth Ave., New York, store. Architect, E. F. Sibbert, New York City.

MASTER BUILDERS

NEW PRODUCT NEWS



Anemostat: Types B & C

Designed for use on either new or existing air conditioning systems, the Anemostat Air Distributor functions in twofold fashion: reduces velocity and equalizes distribution, draws small portion of room air and mixes it with conditioned air. Claimed for Anemostat is possible reduction of air velocity up to 1/20, completely draftless performance. Coming in three types—for velocities of 5,000 ft/m, 4,000 ft/m and 2,500 ft/m—and a wide range of sizes, Anemostat can also be designed to give any desired velocity in any direction. May be combined with direct or indirect lighting.
Anemostat Corporation of America, 551 Fifth Avenue, New York City

New Paint from Flaked Lead

Metallic lead is the main ingredient of a new protective paint made from thin lead foil broken up into fine flakes which, when spread out upon a surface interleave into a film. Adhesion and ductility depend on both lead and vehicle, which may be the new synthetic resins, Chinawood oil (tung oil) or phenolic mixtures such as Beckacite, Durez, or Bakelite. "Metalead" is intended for use as an undercoater or primer on structural framework and general construction, in place of red lead. Its weight is 8 pounds per gallon, against red lead's 25 pounds per gallon, and it is therefore a competitor of the latter in price as well as in use. It is claimed that "Metalead" is suitable for waterproofing or sealing concrete, making it more resistant to mild acids, alkalies, oils, greases, and salt brine solutions. The paint metallizes the outside cellular structure of wood.
Metalead Products Corporation, Balfour Building, San Francisco, Calif.

New Metal Paint

Aluminum paint which penetrates holes, cracks, and rusty spots on metal surfaces and forms a tough protective finish, comes in paste form with the required vehicle in a two-compartment container. Applied by brush or spray gun, it dries in six hours. Its covering capacity is 700 to 900 sq. ft. per gallon in one coat on a smooth surface. The coating provides a lasting shiny gloss, and will not become brittle.
Samuel Cabot, Inc., 139-43 Milk Street, Boston, Massachusetts

Acid-Resisting Lacquer

A clear lacquer that resists common acids, alkalies and solvent also is nontoxic, odorless and tasteless. No. 20 All-Resistant Clear Coating can be used for the interior of steel food containers.
The Watson-Standard Co., Pittsburgh, Pa.

Hammered Metal Effect from Paint

"Hammerloid" paint gives a finish resembling hammered brass, silver, or copper when applied on metal, wood, paper, composition board or molded plastics. The paint, intended for interior work only, comes in 22 standard colors in two-compartment cans, and is applied in two spraying operations.
Glidden Co., 11101 Berea Road, Cleveland, Ohio

Sealer for Insulation Board

Applied by brush, Insulite Sealer, composed of emulsified oils combined with a chemically-treated film substance, penetrates the surface apertures of the board and forms a translucent film. As the film dries the surface fibers of the board are subdued to form a smooth firm base for paint. The product may also be used to seal any porous surface.
The Insulite Company, Minneapolis, Minnesota

Insulation Panel Boards

Homasote Panelyzed Insulation boards are cast in wood molds and give the effect of actual wood panels. The board comes in widths of 16″, 32″ and 48″, in lengths of 8′ and 8′-6″, and in four standard colors: old English dark, old English light, Pine Tone and Silver Gray.
The Agasote Millboard Company, Trenton, New Jersey

For Patching and Resurfacing

"Speedcrete" patches and resurfaces concrete, wood, tile and brick floors. Supplied in powdered form it requires only water for mixing. As a primer on a clean surface its consistency should be thin; for troweling over a worn or broken area its mix should be dryer. The material sets in 8 hours, and in 15 hours is hard enough for traffic use. It does not shrink and it bonds to concrete, tile wood, plaster or brick.
Upco Co., 4798 Lexington Avenue, Cleveland, Ohio

Acid-Resistant Floor

Combining diabase and quartz, two acid-resistant materials, "Rockflux" resists abrasion, is quick-setting and easy to install. It is suitable for use where floors are subjected to severe wet conditions, as in tanneries, dairies, abattoirs, etc. The product is applied over old or new concrete floors in 1″ thicknesses.
The Flexrock Company, 800 North Delaware Avenue, Philadelphia, Pennsylvania

Concrete Floors

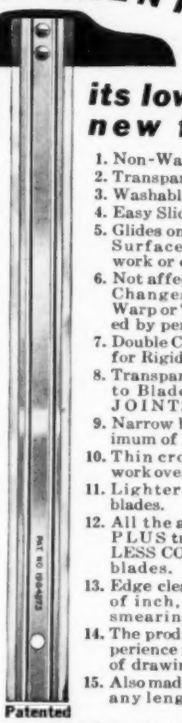
Firesafe, vermin-proof and with heat and sound insulation qualities is the Floroform system. Any combination of floor finishes may be used. Precast concrete joists and blocks are shipped direct to the job for assembly.
Bedford Hills Concrete Products Corporation, Bedford Hills, N. Y.

Subflooring

A quick-setting underlayment for floors is on the market under the name of "Floorstone." Floor covering may be applied twenty-four hours after pouring.
Tamms Silica Company, Chicago, Illinois

(Continued on page 42)

SENSATIONAL NEW
STAINLESS STEEL T-SQUARE
WITH TRANSPARENT EDGES



Acclaimed for revolutionary its low cost and new features

How many times have you wanted the ideal T-Square? It's here at last! America's first *Stainless Steel*, Non-Warpable T-Square with transparent edges. Costing considerably less than other metal blades, the *Turner Stainless Steel T-Square* gives you many practical features no others offer. They are features you have dreamed about, but never before thought possible... and all at a price which will amaze you. Once you use the Turner Stainless Steel T-Square, you will never be satisfied with any other.

Check its features, and write today for your dealer's name, descriptive booklet, and price list.

1. Non-Warpable.
2. Transparent Edges.
3. Washable Blade.
4. Easy Slide.
5. Glides on two Hard, Rounded Surfaces that will not soil work or catch dust.
6. Not affected by Atmospheric Changes. Dead Flat... No Warp or Twist... not affected by perspiration.
7. Double Channel Construction for Rigidity.
8. Transparent Edges secured to Blade by DOVETAIL JOINTS, no cement used.
9. Narrow blade, covers a Minimum of Drawing.
10. Thin cross-section, easy to work over.. no bevel required.
11. Lighter than solid metal blades.
12. All the advantages of metal PLUS transparent edges at LESS COST than other metal blades.
13. Edge clears paper 10/1000th of inch, keeping ink from smearing.
14. The product of 20 years' experience in the manufacture of drawing tools.
15. Also made as straight edge in any length.

Dealer Inquiries Invited — Patented

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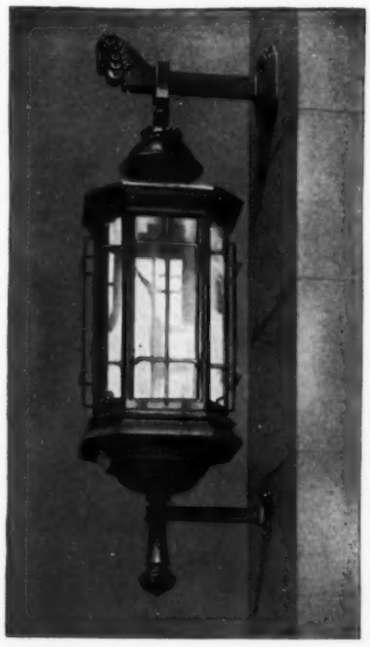

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Comfort Cooling
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AEROFIN CLEANABLE TUBE UNITS: For cooling only. Headers removable to permit cleaning of tubes. Recommended where sediment or scale-forming chemicals are present in cooling water.

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NEW PRODUCT NEWS

New Vaporproof Reflector

An angle type vaporproof reflector for use with 250-watt High-Intensity Mercury vapor lamps has a cast-iron hood with medium socket, an opal glass globe and a porcelain enamel reflector. Hood and globe are threaded and gaskets are provided for the vaporproof inclosing globe. The hood is tapped for ½" conduit, and will also attach to a standard 4" sheet metal outlet box. In addition, the hood has a medium base front-connected socket, rigidly mounted, which keeps the lamp in proper position.
Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa.

Neon Sign Tubing

Colorback glass tubing makes neon signs more readable during the day and eliminates the halo between letters at night. The back half can be red, blue or white, with a clear glass front. An 18 M. A. transformer can be used with this type of tubing instead of the 30 M. A. transformer required by clear glass signs.
Col-R-Bak Neon Products Co., 16 N. May Street, Chicago, Illinois

Self-contained Reflector Lamps

Inside-silvered linings give controlled distribution of light in a specialized industrial lamp recently developed by Birdseye Electric Company. A swivel base screws into electric socket, makes focus instantly adjustable, permits light to be concentrated on desired area. A special super-imposed "blue spray" preparation gives color correction of light.
Birdseye Electrical Co., 100 East 42 Street, New York City

Molded Rubber Plug

A rubber angle plug, molded in one piece with the cord for use with lamps, clocks and other small electric appliances, was designed by Ray Patten for General Electric. The cord lies flat against the wall or baseboard, as the plug is at right angles to the cord.
General Electric Co., Bridegport, Connecticut

Quick Heat Pick-Up

A new thermostat, which responds directly to radiator temperature as well as to room temperature, has four small bulbs attached to different sections of the radiator or convector, operates so the radiator iron never becomes cold. The "Armco Equatrol" eliminates "lag" in heat pick-up by calling for heat before the room temperature has dropped below the comfort point. The room thermostat bulb operates the electrical contacts on a room change of 1/5 of a degree, while the radiator bulbs operate on a change in radiator temperature of 10 degrees.
American Radiator Company, New York City

Roof Ventilator

A gravity ventilator which combines a recently developed lower louver with the standard sliding sleeve damper and sliding cone damper is produced by The Burt Manufacturing Company. Standard construction material is prime open hearth galvanized steel, but other materials are optional.

The full line of dampers put out by the same company, including a single disc butterfly type and a multiblade louver type are designed to allow a flexible means of air movement control through the company's ventilators.
The Burt Manufacturing Co., Akron, Ohio

Hatchway Covers and Curbs

With a cover of aluminum which swings on special compensating hinges, the B-D Easy Access Roof Hatchway has an opening area of 2'-6" x 3'. When closed, the hinges exert pressure on the draft seal, and prevent wind entrance. The hatch curb, 11" high, is made of galvanized Armco iron, aluminum or bronze, and can be nailed or bolted to the roof. The sides have a removable counter flashing strip which is ready to take either copper flashing or roofing paper. Covers are weatherstripped on all four sides.
Babcock-Davis Corporation, 474 Dorchester Ave., Boston, Massachusetts

Stainless Steel T-Square

Nonwarpable is a new stainless steel T-square with transparent edges. The blade is washable, and is permanently accurate. It glides on two hard, rounded surfaces that protect the work underneath. The price ranges from $1.75 for a 12"-instrument to $23.55 for a 96" one. There are four models.
Turner Devices Inc., 1212 Mississippi Avenue, St. Louis, Missouri

Electric Eraser

Drawings can be corrected without scarring by means of a new motor-driven eraser. Motor, housed in small easily held molded-plastic case, drives a chuck holding eraser point. Speed of eraser, rather than pressure, does the job. A button, under user's forefinger, starts and stops motor. Device weighs eight ounces with cord and plug.
Keuffel & Esser Co., 298 Adams Street, Hoboken, N. J.

NEW LITERATURE

AIR CONDITIONING, HEATING, COOLING AND INSULATION

Airheater Centrifugal Fan Unit Heaters. Airtherm Manufacturing Co., St. Louis, Mo.

All-Season Air Conditioning Units, Catalog No. AC-201. Fedders Manufacturing Co., Inc., Buffalo, N. Y.

Cut Your Water Costs for Refrigeration & Air Conditioning. Hydro Cyclonic Condenser. General Refrigeration Sales Co., Beloit, Wis.

Economical Automatic Heat for Schools and Colleges. Detroit Stoker Co., Detroit, Mich.

Homasote Panelyzed Insulation. The Agasote Millboard Co., Trenton, N. J.

Ideal Boiler No. 4; Kohlflash Water Heater; Ideal Oil Burning Water Heater. Three circulars. American Radiator Company, New York City.

Koven Waterfilm Boilers and Air Conditioning Units. Koven Waterfilm Boilers, Inc., Jersey City, N. J.

Pierce Eastwood Oil Boiler; Pierce Stoker Boiler. Two bulletins. Pierce-Butler Radiator Corporation, Syracuse, N. Y.

Stokers, Commercial and Industrial, Specifications and Engineering Data. Combustion Engineering Co., Inc., Industrial Stoker Division, New York City.

The Auditorium Plan, Bulletin No. 11. Auditorium Conditioning Corporation, 17 East 42 Street, New York City.

Thermotile Steam Conduit System. H. W. Porter & Co., Inc., Newark, N. J.

Welded Piping for Power, Heating, Plumbing, Refrigeration. Air Reduction Sales Co., 60 East 42 Street, New York City.

STRUCTURAL MATERIALS AND PARTS

Ace High Mason's Hydrated Lime. The Woodville Lime Products Co., Toledo, Ohio.

Acousticork. United Cork Companies, Kearny, N. J.

Forest Conservation in the Western Pines. Western Pine Association, Yeon Building, Portland, Ore.

How to Plan and Install a Nibco Lawn Spray System, by M. E. Snoddy. Northern Indiana Brass Co., Elkhart, Ind.

Kinnear Rolling Grilles. Kinnear Manufacturing Co., Columbus, Ohio.

Lehigh Early Strength Cement. Lehigh Portland Cement Co., Allentown, Pa., Chicago, Ill., Spokane, Wash.

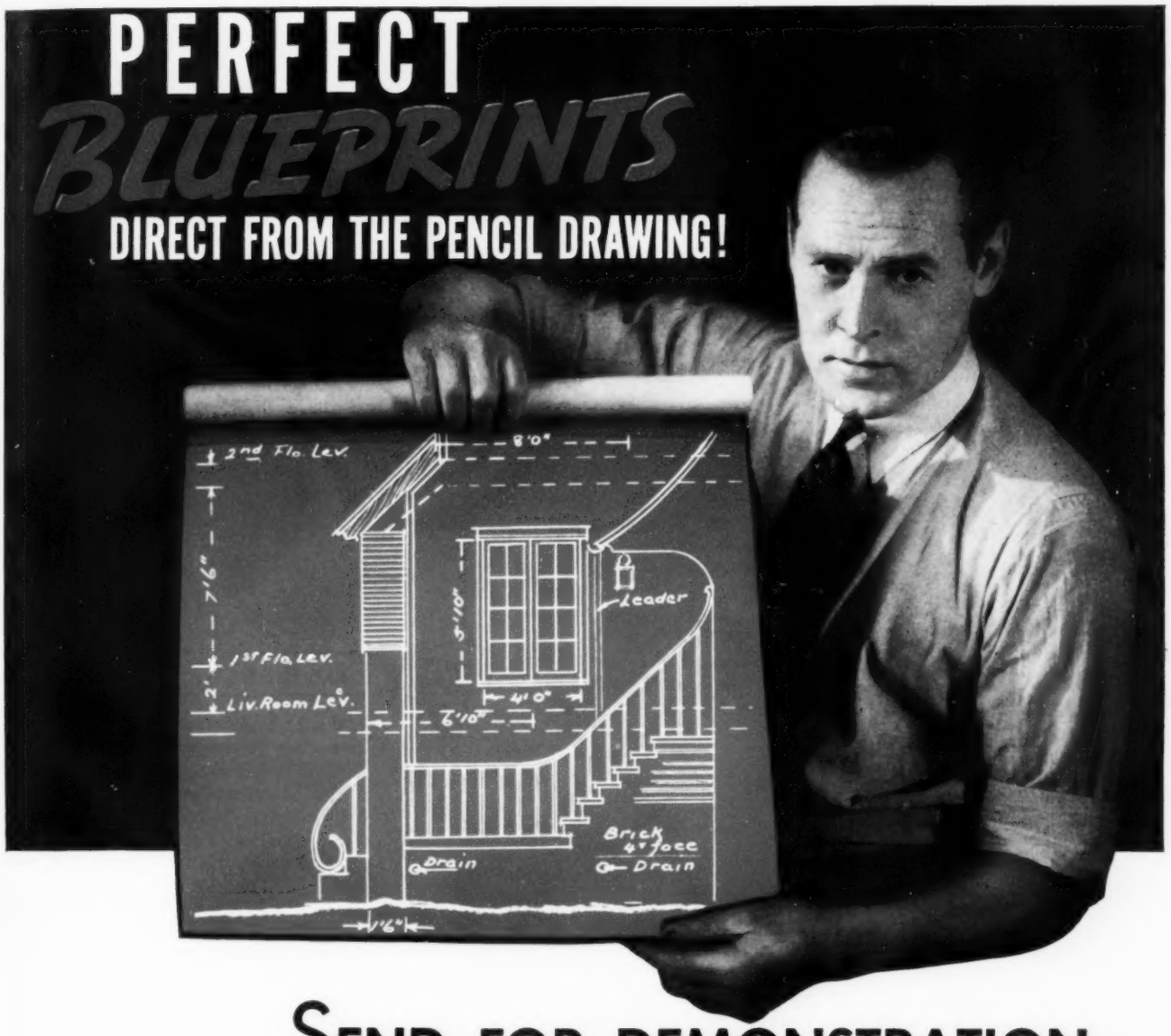
Manual of Standard Construction for Stock Sash, Doors and Frames. National Door Manufacturers Association, Inc., Chicago, Ill.

Research Bulletin No. 22 on Building Materials and Appliances. The Producers Council, New York City.

(Continued on page 44)

PERFECT BLUEPRINTS

DIRECT FROM THE PENCIL DRAWING!



SEND FOR DEMONSTRATION BLUEPRINT AND SAMPLE TURQUOISE PENCIL TO MAKE YOUR OWN TEST

So opaque and densely uniform is every line from a TURQUOISE lead that you can make sharp, perfect blueprints direct from your uninked pencil drawings. Specially blended graphites, super-refined clays and days of extra grinding make TURQUOISE leads unequalled for draughting purposes. The 17 accurate and uniformly spaced grades are made from 17 basic formulas. The leads are waxed for smoothness alone—never to create two or more grades from one formula.

"Chemi-Sealed" TURQUOISE gives you the smoothest lead and strongest point in any drawing pencil. Eagle's patented, super bonding process seals in the lubricating waxes for permanent smoothness and welds lead and wood so inseparably that they combine their full strength against breakage. To prove all this, write for Demonstration Set, mentioning this publication and your supplier's name.

EAGLE PENCIL COMPANY, 703 East 13th Street, New York

EAGLE "Chemi-Sealed" TURQUOISE
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NEW LITERATURE

"ShieldA-rc SAE" Welder. Lincoln Electric Co., Cleveland, Ohio.

Speakman Si-Flo Flush Valves. Speakman Company, Wilmington, Del.

The Path to Sheet Metal Permanence. Toncan Iron, Republic Steel Corporation, Cleveland, Ohio.

FLOORING

Concrete Floor Treatments by Truscon. Truscon Laboratories, Detroit, Mich.

Silent Footsteps, Air-Pad Sheet Rubber Flooring. Voorhees Rubber Manufacturing Co., Inc., 125 East 46 Street, New York City.

The Beauty of Terrazzo. Medusa Portland Cement Co., Cleveland, Ohio.

PAINTS AND FINISHES

The Age of Color, Manual for Painting. The Glidden Co., Cleveland, Ohio.

Metallizing, Photographic Story of Metal Spraying Process. Metallizing Company of America, Los Angeles, Calif.

Polytect, Plaster Wall Paint. American Polytect Corporation, New York City.

STORE FRONTS

Individualized Store Fronts. The Formica Insulation Co., Cincinnati, Ohio.

OUTDOOR EQUIPMENT

All Steel Grandstands, Bulletin No. 401. Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

En-Tout-Cas Tennis Courts. En-Tout-Cas Co., Ltd. Syston, Leicestershire, England. American Agents: Guy C. Foster, Inc., 128 Water Street, New York City.

MARKETING NEWS

Lighting Laboratory

Store lighting problems are studied and various solutions demonstrated in General Electric's Nela Park Institute Lighting Laboratory. A specially designed ceiling divided into 27-inch panels permits a variety of lighting experiments. Globe inclosures, correct light levels, indirect, general and special local lighting are some of the problems studied at the laboratory.

Offer "Steel Chassis" for Home Construction

Recently formed by Truscon Steel Company, Youngstown, Ohio, is its Housing Division. While no complete information regarding the extent of Truscon's participation has been given, it is understood that the company is not interested in any plan that contemplates the complete prefabrication of houses. Truscon plans to offer a steel frame or "chassis" for residential construction. It is said that this frame will be so versatile in its design that it may be clothed with any interior or exterior treatment desired.

ANNOUNCEMENTS

One of the few architectural groups in the world organized around a long-range plan of research, CIAM will this year discuss "The Functional City," exhibit four years of research work on that subject by its component national "groups."

A series of public lectures and debates covering various phases of CIAM work will be supplemented by two exhibitions —one of the collective work of the Congress on the functional city, the other of the work and research projects of individual members.

Advanced design training courses will be given at Columbia University's Summer Session, which opens July 12. Frederick J. Kiesler, architect, will give a course in contemporary furniture design, from preliminary sketches to full-sized detail drawings, with material schedules and price estimates. Mr. Kiesler was trained at the Technische Hochschule in Vienna and at the Akademie der Bilden den Kunste, and has lived in this country since 1926. Professor Emmy Zweybrueck, a leader in the "Kunstgewerbeschule" style of Vienna, will give a course in textile and painted paper design. Professor Zweybrueck studied with Cizek, Hoffman and Kolo Moser. Instruction in both courses will be in English.

Professor Leopold Arnaud, acting dean of Columbia's School of Architecture, will succeed Joseph Hudnut as head of the School. Professor Arnaud practiced architecture in New York City for seven years prior to his appointment as instructor at Columbia University in 1932.

The architectural offices of George Towner Senseney, were moved May 1 to 600 S. Michigan Blvd., Chicago, Illinois.

Frank W. Bail, architect, and Associates, formerly at Hanna Building, Cleveland, have opened an office at First National Bank Building, Hendry Street, Fort Myers, Florida, with branches in Cleveland and Pittsburgh.

Robert Heller, industrial designer, has been appointed director of the Advisory Design Service Department of the Masonite Corporation, Chicago, Illinois. The Department, made up of trained architects and draftsmen, furnishes without charge plans, special layouts and color schemes adapted to individual problems.

The architectural practice of the late George W. Kelham will be continued by his associate Harry A. Tomsen, Jr., at California Commercial Union Building, 315 Montgomery Street, San Francisco, California. Other members of the firm are: Wm. G. Pigeon, J. F. Beutler, H. J. Brunnier, T. B. Hunter, R. A. Hudson.

H. I. Feldman, architect, announces the removal of his office to 415 Lexington Avenue, New York City.

J. Stewart Stein has moved from 80 E. Jackson Boulevard, to 600 So. Michigan Boulevard, Chicago, Illinois.

OBITUARY

J. Foster Warner, architect, died at his home in Rochester, New York, on April 20, at the age of 78. A member of the American Institute of Architects, Mr. Warner designed five of Rochester's telephone exchange buildings as well as many residences and business buildings. He was one of the first members of the City Planning Commission, and when that body was legislated out of existence, in 1929, he became first chairman of the present city planning board which he helped to organize.

CALENDAR OF EXHIBITIONS AND EVENTS

- **June 10–14**—Registration for summer session in Housing - Community Planning and Low Rental Management, New York University, Bryant Park Center, New York.
- **June 10–14**—Competition for Horn Fellowship in Architecture, University of Pennsylvania.
- **June 11–13**—Princeton University Architectural Round Table, Princeton, New Jersey.
- **June 12**—Opening, Greater Texas and Pan-American Exposition, Dallas, Texas.
- **June 21**—Summer Convention, American Institute of Electrical Engineers, Milwaukee, Wisconsin.
- **June 22**—Application for entrance to competitions for fellowships, Syracuse University, Syracuse, New York.
- **July 5**—Opening, summer session courses in architecture, Syracuse University, Syracuse, New York.
- **July 12**—Opening, summer session courses in architecture, Columbia University, New York.
- **July 17**—Opening, XIV International Congress of Architects, Paris, France.

4th in a Series

News!

On those "Last-minute"

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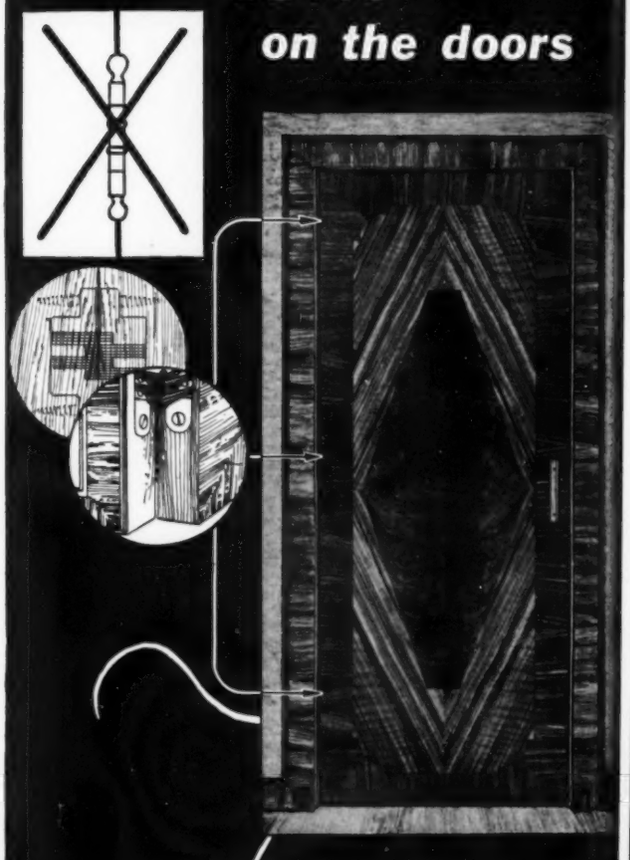

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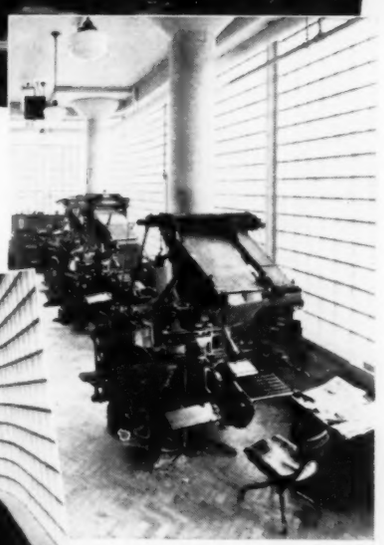
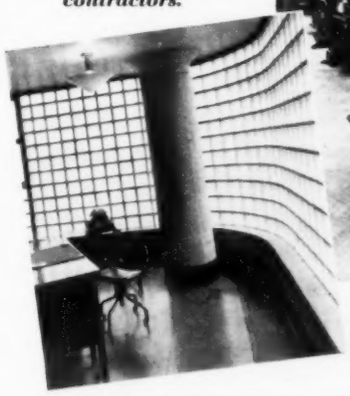


American Education Press Building Columbus, Ohio . . . Richards, McCarty and Bulford, architects; E. Elford and Son, contractors.



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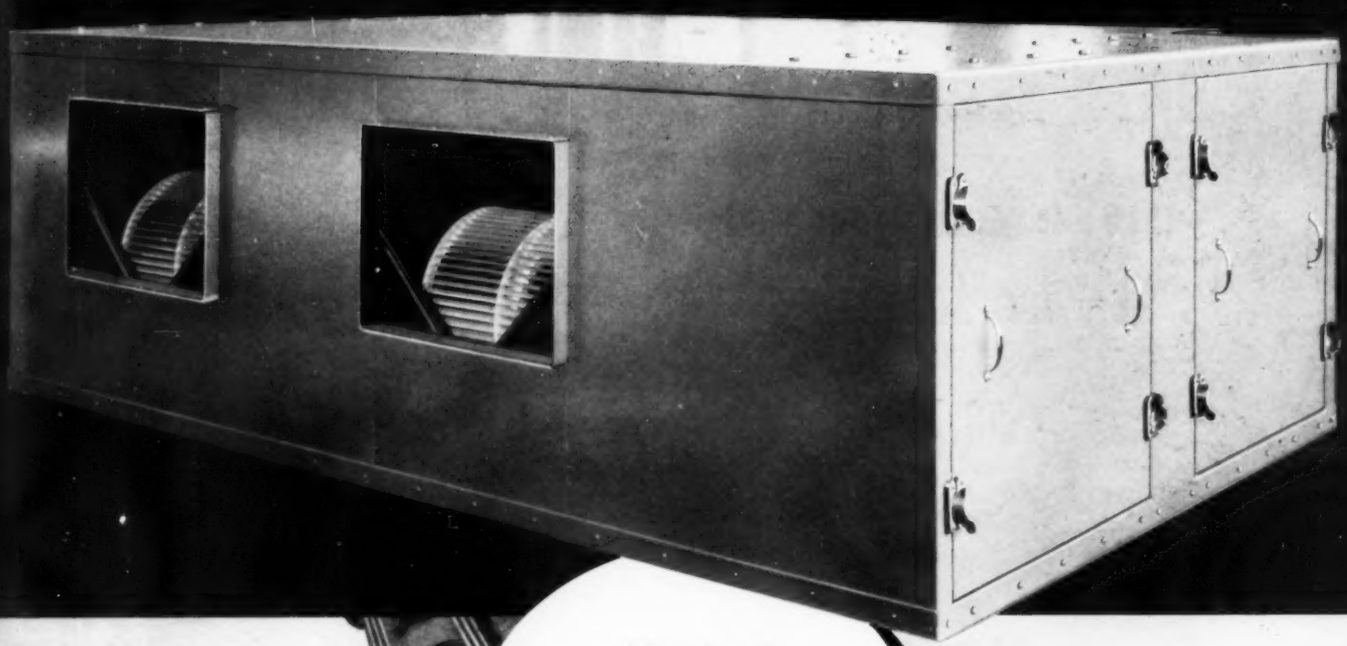

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DESIGN TRENDS

Abstraction in terms of life and in terms of space, and concretion in terms of architecture, is the right approach to a new and vital architecture, says Paul Nelson.

Like many another city, St. Louis was in trouble at the center. People were moving out, but expensive utilities remained. The City Plan Commission found the answer in planned neighborhoods.

Are rising construction costs an incident in the upward march of recovery, asks Thomas S. Holden, or an indication of a trend which might or should be checked?

How would you design an outdoor theater to take advantage of the natural setting: a view of the sky and the presence of trees?

And speaking of theaters, Frederick J. Kiesler checks off some of the implications of mechanized entertainment.

Pictorial Record: churches, parking garages, warehouse, barber shop, houses.

Books Reviewed: Art and the Machine. Flats—Design and Equipment. The Small Church. 1937 Decorative Art.

ARCHITECTURAL Record

Photo by Max Zimm

"THE SOLUTION WILL SURPASS SIMPLE UTILITARIAN ARCHITECTURE AND BECOME AN ARCHITECTURAL ACHIEVEMENT."

—Paul Nelson

A Method of Procedure In Architectural Design

PAUL NELSON, architect, was born in Chicago in 1895, graduated from Princeton University, went to France as aviator during the war, and later pursued the study of architecture at the Ecole des Beaux-Arts where he received his diploma. Though Mr. Nelson's headquarters have since been in Paris, he is licensed in the State of New York. At the Ecole he worked first under the direction of Pontremoli and later Auguste Perret. During these years he went through the revolution of modern architecture, following closely the efforts of Le Corbusier, whose inventive ability he admires.

By PAUL NELSON

THE PRACTICE of architecture has become increasingly complicated by those practical requirements essential to the working of a plan or the successful operation of a building. The success of a structure as architecture lies not alone in its fine form or in its sheer practicality but also in the satisfaction of the aesthetic purpose achieved, considered by the architect when he develops an analysis leading to the solution.

Over a period of years I have been developing a method of approach for architectural problems. This method resolves itself into three stages:

FIRST STAGE: The Nonarchitectural Analysis—abstraction in terms of life.

SECOND STAGE: The Architectural Analysis—abstraction in terms of space.

THIRD STAGE: The Architectural Synthesis—concretion in terms of architecture.

The first stage is clearly the fundamental one, for herein lies the way of a new and vital architecture. The method provides that during this stage all the phases of the "life" in question be resolved into their most minute terms, thus determining abstractly the functions, spiritual as well as material, to be satisfied. The more clearly these functions become defined, the more they resemble biologically organs with an interrelated system which, in contact with abstract space during the second stage, shall generate a new living organism, whose growth finally, in contact with concrete space during the third stage, will shape and mold its own architectural form.

The method is a dialectical one, in which reality creates the idea as opposed to the preconceived architectural idea or formula.

This is the BASIC PRINCIPLE to which attention must be called since it plays a major part in contemporary architecture. The term "contemporary architecture" must be preferred to "modern architecture" as being more exact and unequivocal. Modern architecture has taken on meanings opposed to the vital architecture that it should be. One should even guard against the idea of "style" and "decoration" which it evokes, and behind which there may lurk the same errors in fundamentals as in what is called "traditional architecture."

Thanks to the excellent work of certain forerunners whom we all know, the technical and aesthetic revolution has been accomplished. This marks the end of a period. What is wanting now for further development of contemporary architecture is the application of these accomplishments to life. Further efforts to exploit it as an individual expression of art will only tend towards anarchy and abstraction entirely opposed to its vital purpose and which, if continued, will cause it either to be transformed if superficial into a "mode," or to be suppressed by the reactionary movement (such as has already happened in certain countries). Moreover it is important to observe that "modern architecture" is distinctly a social architecture, because not only is it contemporary and parallel with the present social evolution, but it is less and less the fruit of artisan labor and more and more the product of the machine.

It appears imperative in consequence to call attention to the need of redirecting contemporary architecture along its line of ineluctable development. To do this architecture must become concrete and vital by a return to life for its inspiration. We, as architects, must place at the disposition of "Man" the newly acquired vocabulary, permitting him to create his architecture while we become the interpreters. The return to life for inspiration is not a new conception; architecture has always been the direct expression of contemporary life as history proves. For the architect to attempt to go beyond life is an artificiality both sterile and unavailing. Only in the definition of contemporary-life-in-progress is the truth found. It is preferable then that the architect, conscious of this truth, adopt an attitude more anonymous, less anarchistic, and attack the study of life in order to gain the maximum from it.

As the painter, Hélion, so admirably states*: "In architecture as in all the arts there is a way of following Man so as to ultimately lead him. The comprehension of the immediate and known needs of Man leads the architect to discover for this Man, subsequently, other needs which he himself never suspected did exist and yet essential to his growth." There is then *"a way of following Man,"* a fact which is above all the reason for this method of work.

The sum total of Man's needs determines the limitations which are absolutely essential to stimulate the creative genius of the architect. One must know not only how to discover these limitations but also how to increase their arbitrary and determinate character of restriction. Evidently a technical mind can organize the analysis of any subject but this is not enough, because the rapid evolution of science has made its application so complex that it is practically impossible for a single architect to understand it all.

The following method has been developed to assure the strictest possible observance of these facts. Its exercise requires an organization which to form necessitates the constitution of a skeleton committee to direct the work under the leadership of the architect, including as permanent members the representative of the client, engineers, and builders. This committee should be expanded during each stage to take in those given responsible positions regarding the specific work of that stage.

THE FIRST STAGE; **The Nonarchitectural Analysis:** First the aims, reasons, and extent of the proposed project should be reviewed. After which the main premise of the problem should be determined, which is the governing ideas and principles —the ideologie—so as to set up tenets which define for the analysis the central axis of investigation, thus eliminating the unnecessary discussion of nongermane factors; qualifying the choice, the examination, and interpretation of the subject matter; and endowing the solution with its general character.

Then commences the analysis of all the spiritual and material functions of the life in question, resolving them into their most minute details. The work of this period is abstract because entirely nonarchitectural. Effectually neither the architect, his collaborators, nor the client must think or speak architecture, otherwise its natural growth will be deformed. Any preconceived ideas of the form, style, etc., will only tend to limit the life to them, whereas architecture should be born from life and takes the organic form imposed by it.

* *Cahiers d'Art, No.* 7-10, 1935.

The widest cooperation must be assured during this analysis. All those destined to live within this architecture must be called to help define the limitations resulting from the function of their life. The collaboration of the sociologist, philosopher, poet, artist is as necessary as that of the economist, engineer, and builder, because function is concerned with life as a whole and not with a specialized abstraction.

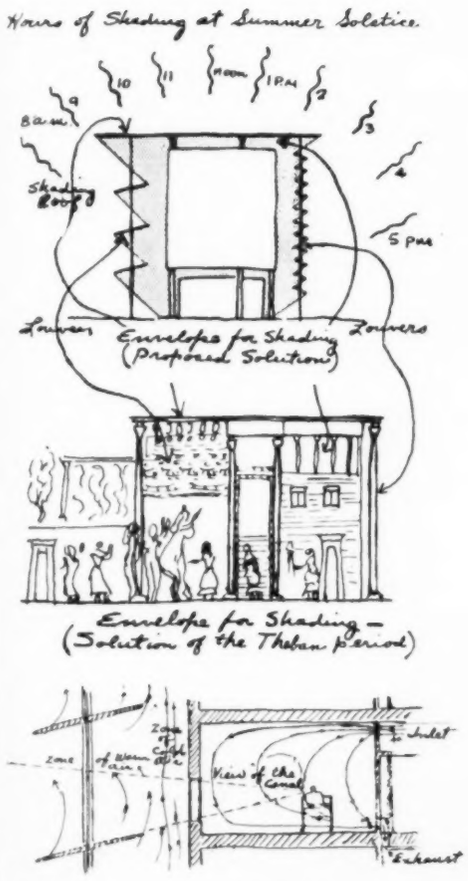
THE SECOND STAGE; **The Architectural Analysis:** This stage is devoted to the translation of the nonarchitectural analysis into an architectural program, to the research of ideal space for each organ, and of ideal systems of relationship of these organs. This work as in the first stage is entirely abstract for as yet there must be no question of the concrete solution. Schematic and flow process drawings establishing ideal organization should be made. New building methods relating more intimately to the general problem must be analyzed as well as new materials. If new technics suggest themselves they must be examined and experimental research carried out to prove their practicality before the third-stage work is started. In concluding, the architect should have now before him a detailed program, the ideal space arrangements for each room or department, the ideal schemes of interrelationship, as well as all the elements relating to building methods, etc.

THE THIRD STAGE; **The Architectural Synthesis:** It is here that the concrete limitations of economics, of space, of traffic, and so forth, and all other conditions compelled by local laws, etc., become the active agents in determining how the organisms already resolved may germinate the new life, which in turn will shape its architecture. It is here for the first time that architectural design crystallizes. For the architect it is the period of interpretation where the quality of creation will depend upon his faculty of objectivity.

If during this stage the sensitivity of the architect is such as to enable him to fully interpret the spiritual requirements over and above the material functions, the solution will surpass simple utilitarian architecture, assured in any case by this method, and become an architectural achievement. The difference between the two is but a question of degrees.

The resulting architecture will be unforeseen because it is the program of life with its imponderables which inspired these architectural forms, these harmonies, these multiple complexities, no architect could have anticipated.

With a method based on evidence and experience may a new and vital architecture be born



ABOVE: Sketches showing the envelope for shading, being similar to a solution of the Theban period, and the relation between the envelope and a typical patient's room.

RIGHT: Isometric showing the operating rooms at the left foreground.

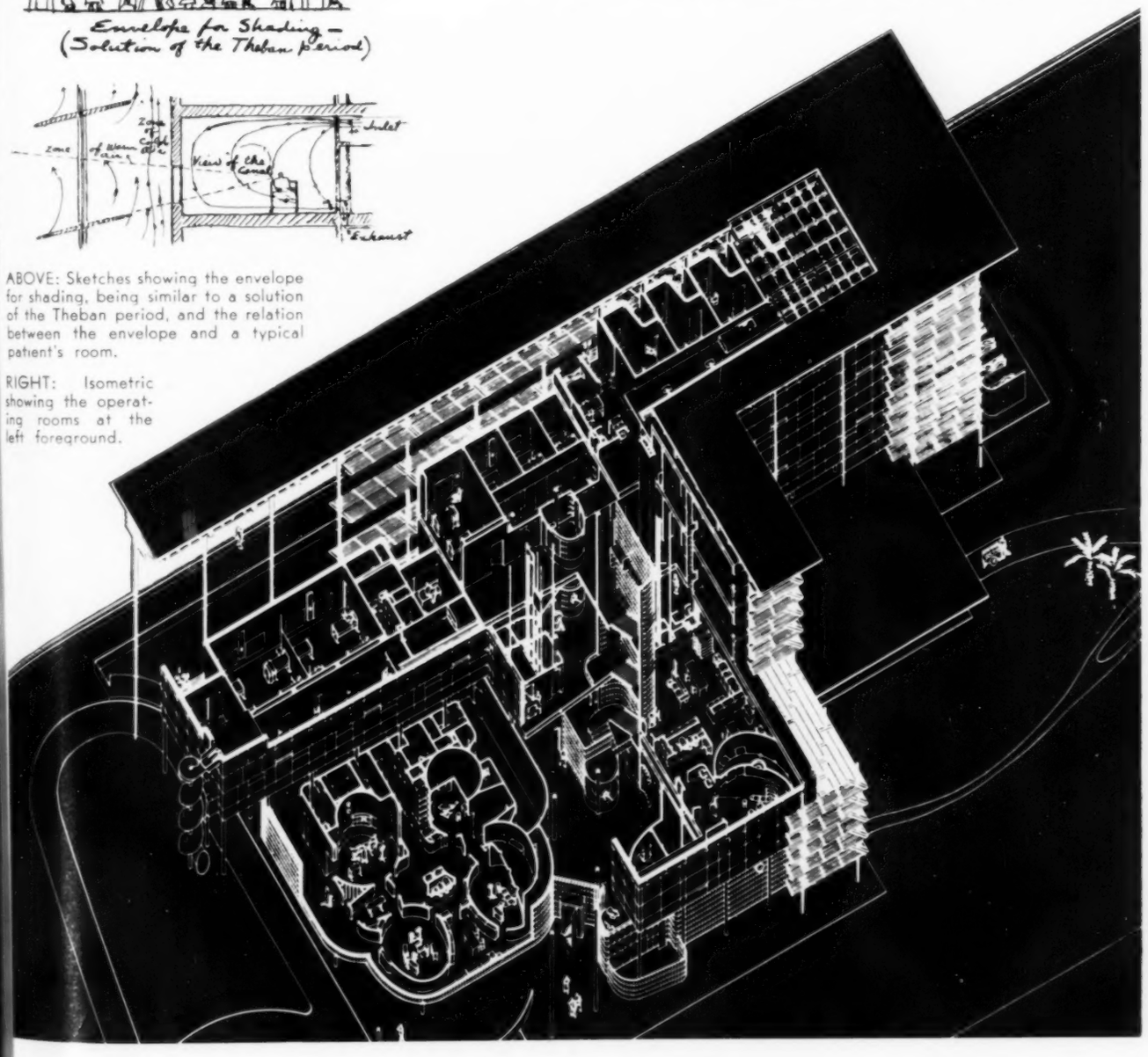
FROM THESE STATEMENTS OF METHOD WE TURN TO APPLICATION

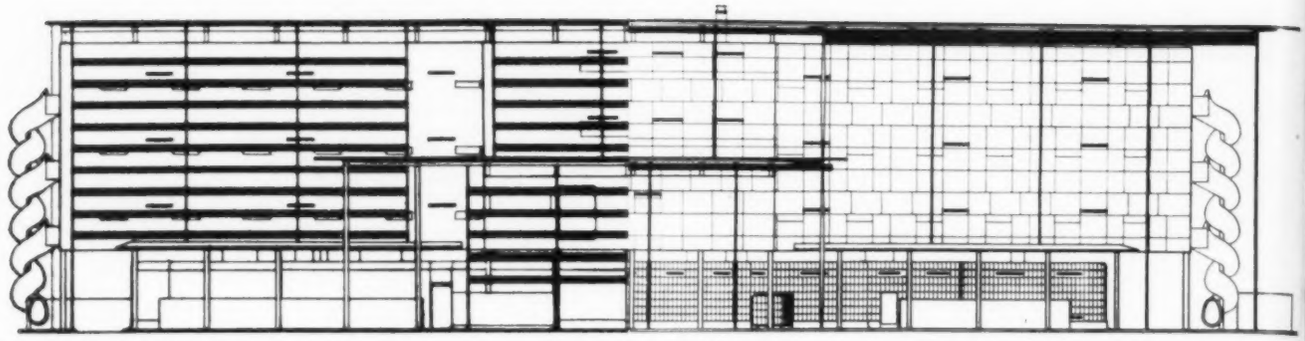
The Suez Canal Company proposed to enlarge its hospital devoted exclusively to the care of company employees at Ismailia, Egypt. Paul Nelson was commissioned to make a technical study of a typical surgical pavilion, to satisfy their very special requirements. Limitations imposed were: the number of beds (62) and the adoption of an arrangement for three classes of patients.

SOLUTION:

ORIENTATION: East-west recommended for warm climate has also the advantage of a view of the canal.

CLIMATIC PROTECTION: Effected first by an "envelope" to be constructed independent of the building. This envelope is composed horizontally of a roof and vertically of louvers located at a distance from the exterior walls of the building, spaced so as not to obstruct the view. The louvers are movable and can be raised to the top of the slender supports.

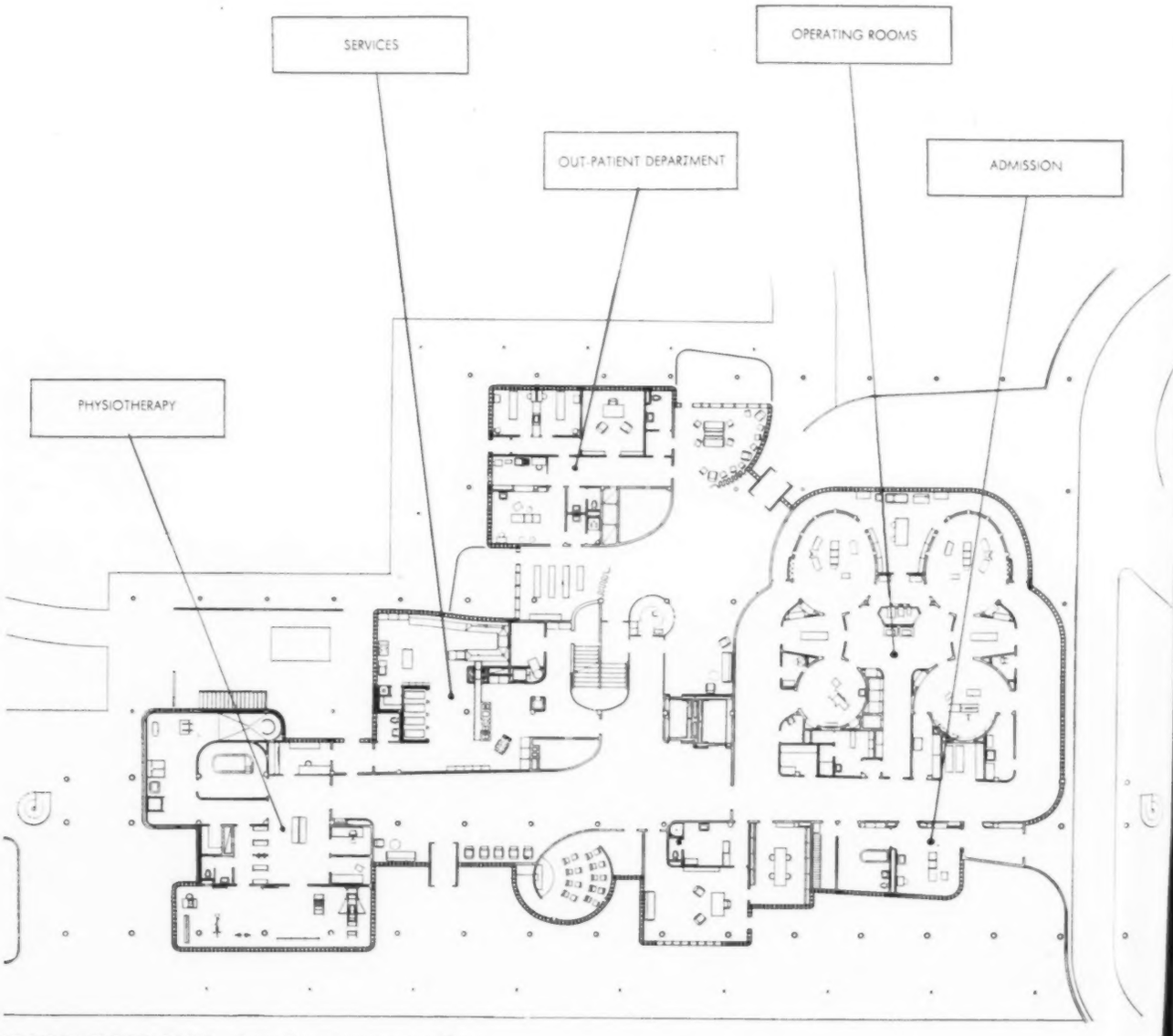




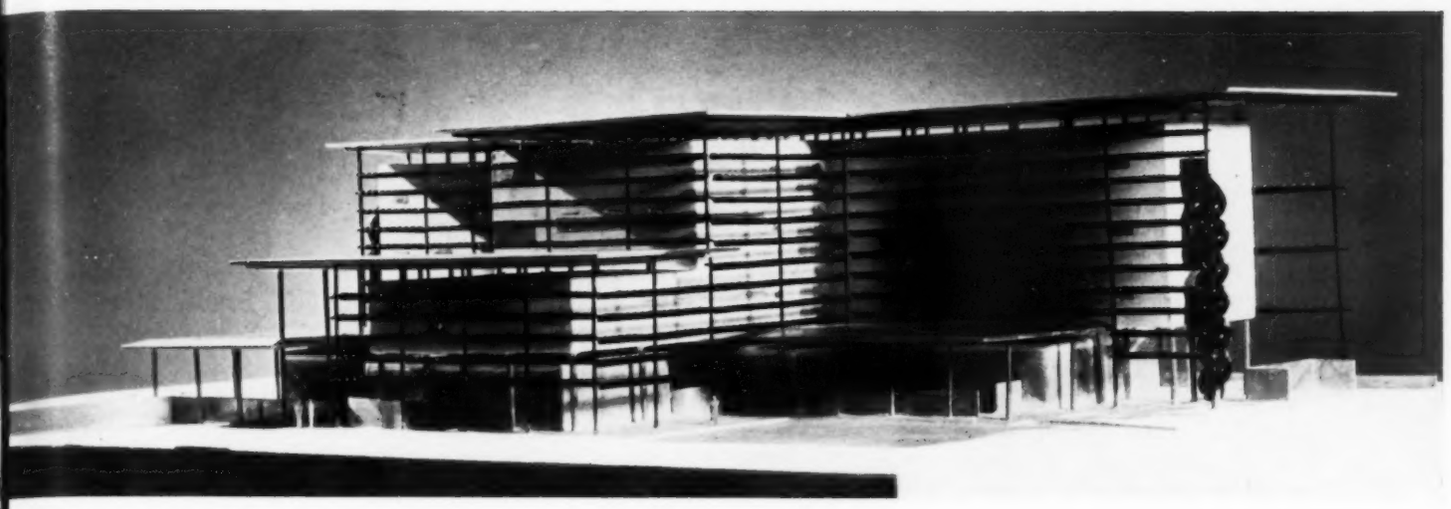
WEST ELEVATION with the shading louvers shown at left; at right the louvers are brought up to the roof.

Second, within the building, with a mechanical ventilation. The exterior shell is insulating, airtight during the period of air conditioning; it opens only to loggias and filtered portholes. Windows are only for view, placed low to avoid excessive light.

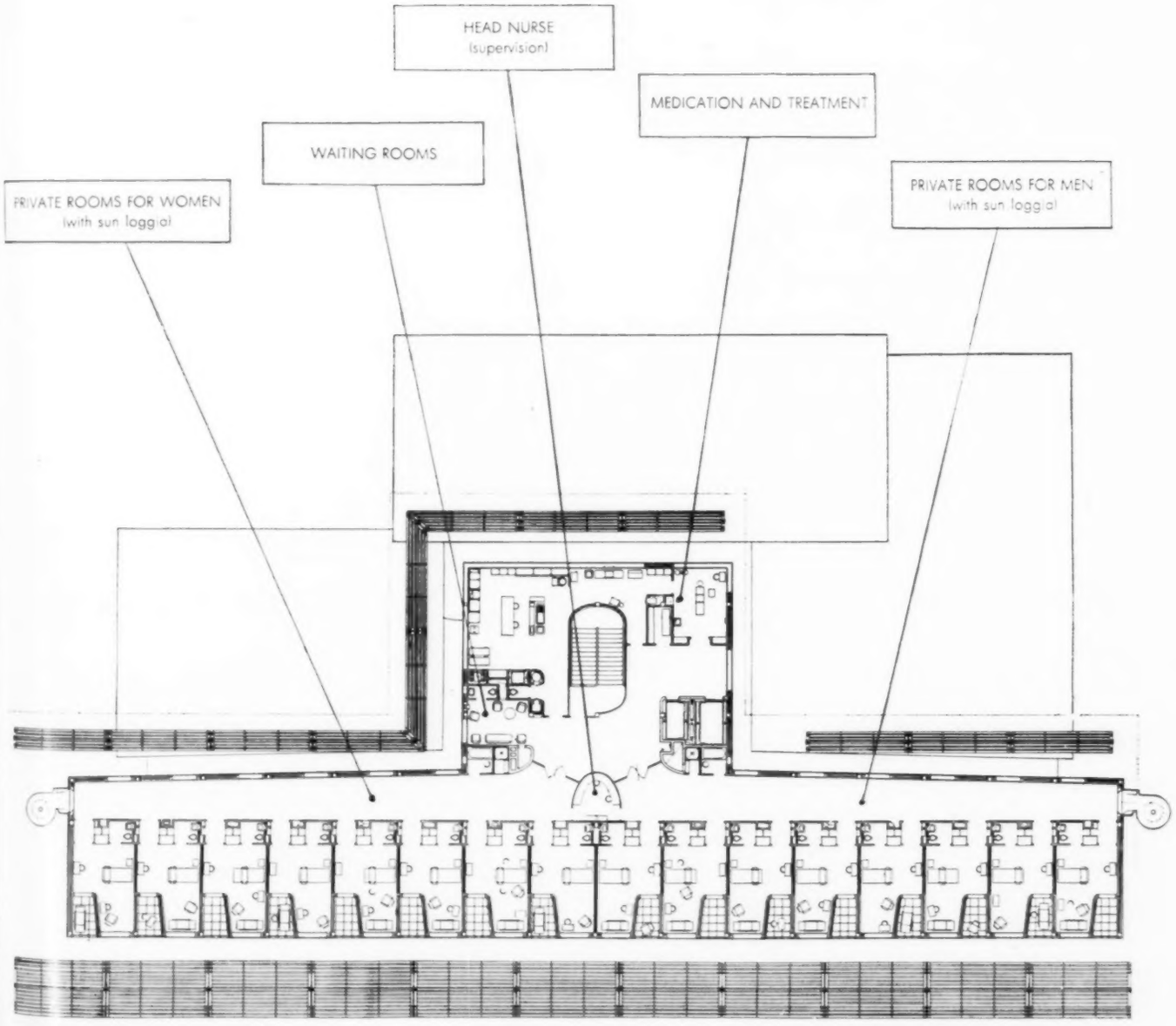
PLAN ORGANIZATION: On the ground floor are groupe all services connected with the outside or of common use t the floors above and demanding a free development. Wa for men and women are located on the second floor and p vate patients' rooms on the third.



GROUND FLOOR PLAN. Grouping common services.



SOUTHWEST VIEW.



PLAN OF THE THIRD FLOOR reserved for the "First Class" patients.

From Sprawling Suburbs Back

THE ST. LOUIS LAND POLICY

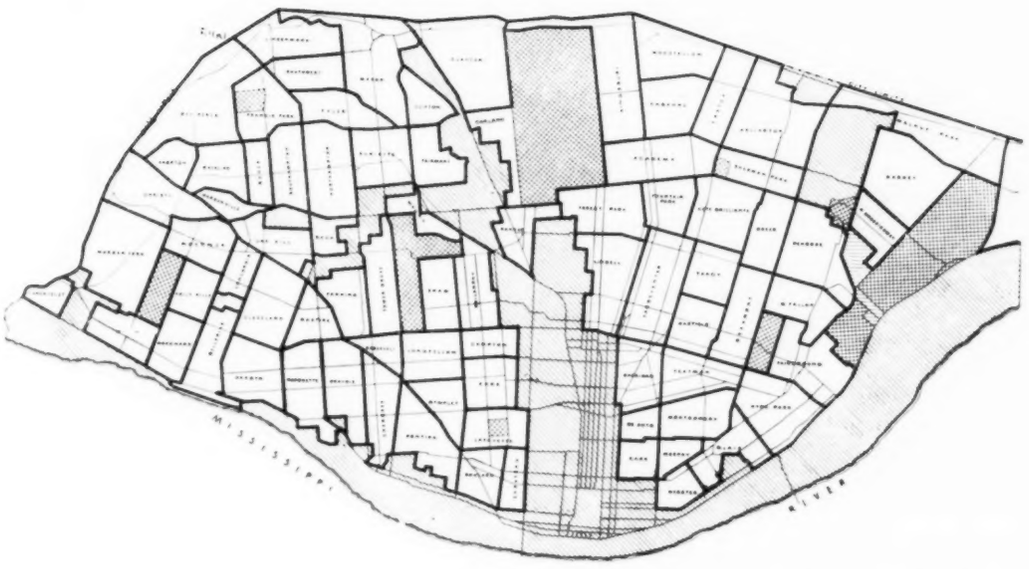
THE CITY OF ST. LOUIS occupies 62½ square miles, while its metropolitan area covers 840 square miles. The city proper has only a relatively small amount of vacant land and new growth is taking place mostly outside the city limits. The total area having a population density in excess of eighty persons per gross acre decreased markedly in vacancy between 1910 and 1920 and had virtually disappeared in 1930. In the older districts there is a 22% vacancy in dwelling accommodations and 26% of the city's area shows a population loss during the period 1920-1930.

Urban trends in St. Louis are typical of those in other American cities. However, as St. Louis has practically no vacant suburban land within its tax jurisdiction, the loss of city population and the accompanying decrease of city land values have set up there a clearly defined and critical problem, which is generally less apparent, though

1910. Density of population per gross area.

1930. The area having a population density in excess of 80 persons per acre has disappeared.

To Urban Neighborhoods



The neighborhood district boundaries as they were proposed by the City Plan Commission of which E. J. Russell, former president of the American Institute of Architects, is chairman and Harland Bartholomew is the engineer.

not less real, in other large cities. If adequate measures are not taken to insure stability of population and taxable values, the city is faced with gradual economic and social collapse.

In October 1935, the City Plan Commission was instructed by Mayor Dickmann to consider the problem of holding, and perhaps increasing, the population within the present city limits. With the aid of employees furnished by the Works Progress Administration, the Commission has made exhaustive studies of land use and population shifts within the city during the past 25 years, on the basis of which it worked out a constructive urban land policy for St. Louis.

A neighborhood unit plan is established, probably the first one covering a whole city although the idea expressed by the plan has become generally accepted since it was formulated by Clarence Perry, in the Regional Survey of New York and Its Environs. The establishment of the proposed neighborhood units will furnish the most logical basis for all forms of housing control and construction. This will make necessary a legislative act authorizing neighborhoods to organize for protection of property and improvement of environment, similar to the model act published by the National Association of Real Estate Boards.

The urban land policy urged by the commission as needed by St. Louis is summarized as follows:

1. Revision of zoning regulations in scale with known laws of supply and demand for each different class of property use, and particularly for protection of residential development.

2. Strict enforcement of sanitary laws and fire laws to insure cleanliness in all classes of property.

3. Elimination of the smoke nuisance.

4. Enactment of a minimum housing standards ordinance providing, among other things, regulations for room size and arrangement, number of persons per room and extent of window space.

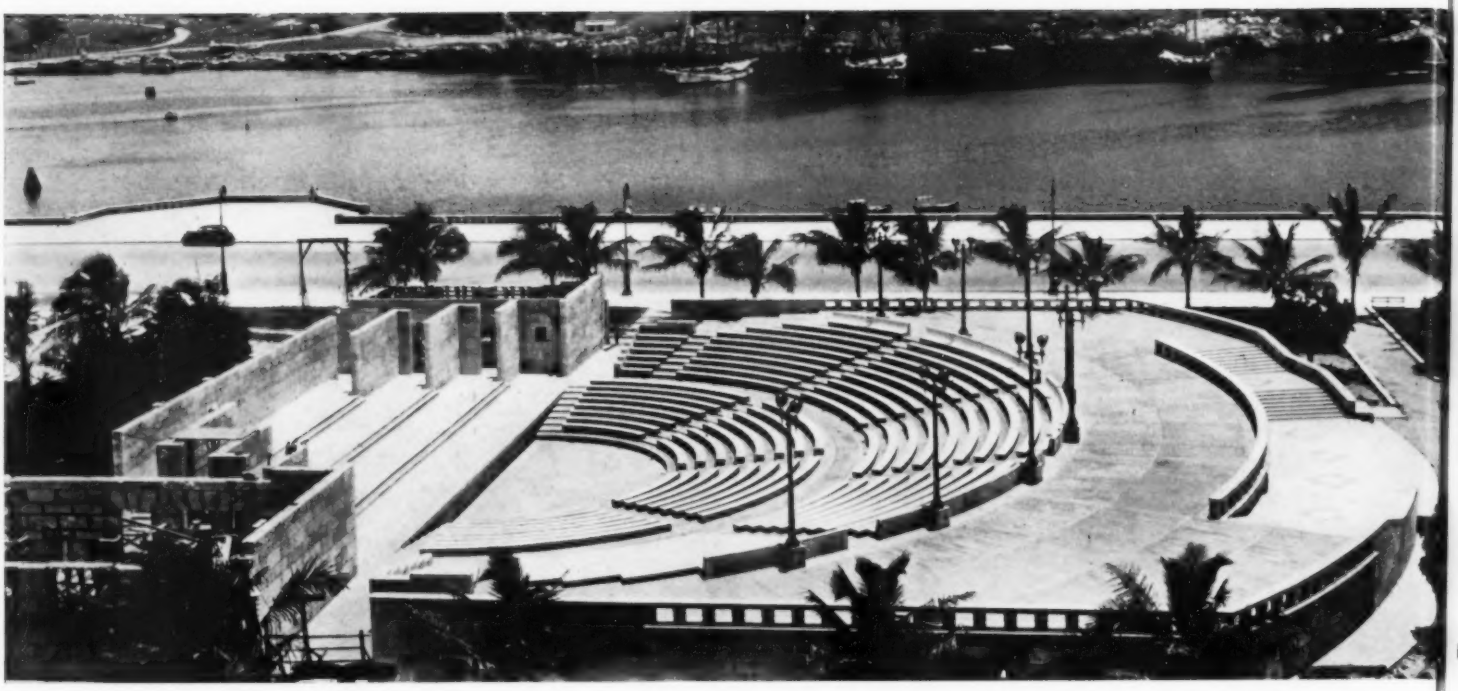
5. Repair and renovation of old buildings not altogether obsolete.

6. Removal of all obsolete structures which are unsafe or unfit for human occupancy.

7. Development of neighborhood units embracing all residential areas in the city for the improvement of environment and the elimination of nonconforming uses.

8. Advocation of construction of several modern large-scale low-cost housing projects in the older sections of the city.

9. Continued maintenance of a high standard of building code regulations.



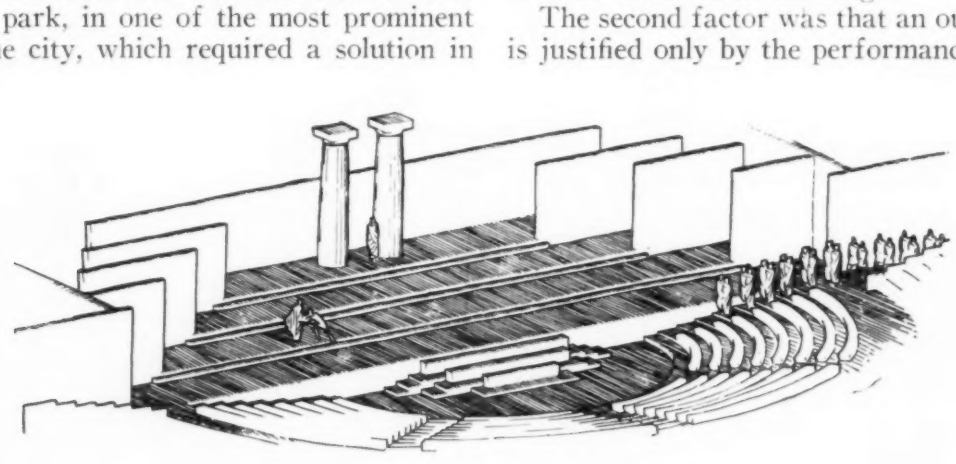
Open-Air Theater in Havana

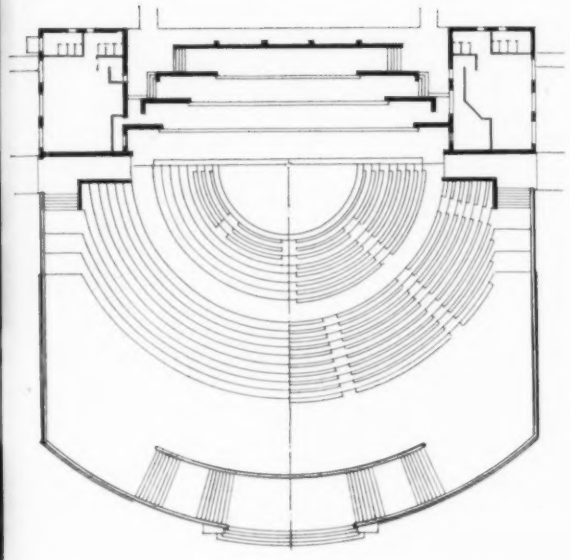
EUGENIO BATISTA* AND AQUILES MAZA, ARCHITECTS

**Instructor in Architecture, Princeton University*

TWO FACTORS controlled the design of the new open air theater on the Avenida del Puerto in Havana. First was the location of the theater in a public park, in one of the most prominent places in the city, which required a solution in harmony with the surrounding gardens. This harmony must be preserved, not only when the theater is in use, but also during the much longer hours and days during the year when it will stand conspicuously in the middle of the gardens as an inert stone structure. That is why the approach has been arranged between trees, sculpture and benches, through wide stairs and ample terraces; why dressing rooms have been reduced to a minimum and walls kept low even at the back of the stage.

The second factor was that an outdoor theater is justified only by the performance of a different type of show than the ones regularly done in inclosed theaters. Merely the fact of being uncovered prevents any effect of intimacy, and so drawing room comedies and chamber music are out of the question. The view of the sky and the presence of trees would make any attempt at painted scenery ridiculous. Band concerts, pantomimes, pageants, group dancing and oratorios





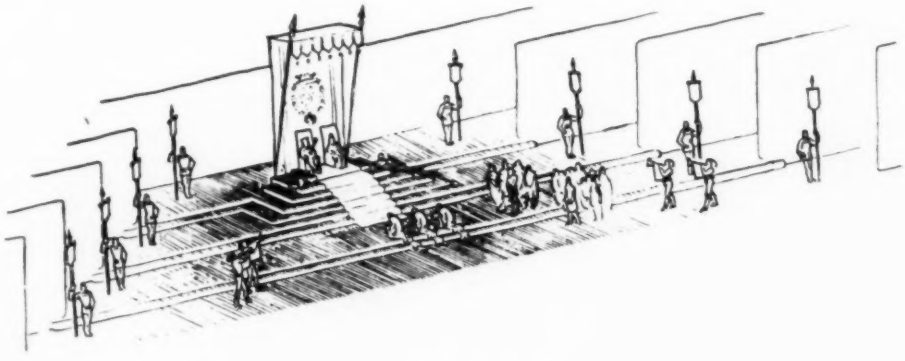
PLAN

VIEW OF THE STAGE
Showing the different levels

are the types of performance that instead of losing, will gain effectiveness by being produced outdoors.

Greek tragedy is, of course, the ideal type, and so the theater at the Avenida del Puerto boasts a semicircular orchestra as a legitimate birthright. The plays of Lope de Vega and of Shakespeare may also be done outdoors, provided gesture and action are given the necessary emphasis, and the dialogue is used only as a guide to the actors in expressing the ideas of the author and conducting the rhythm of the action, but not as an indispensable element to the understanding of the story. Particularly adaptable are those works which call for group action rather than individual performance.

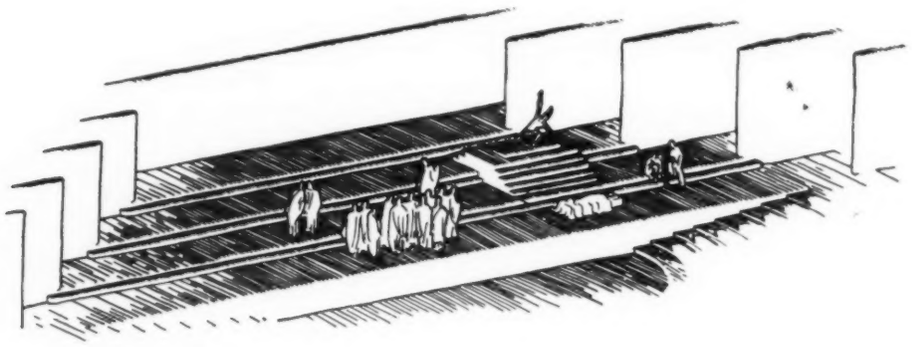
This conception of what an outdoor theater should be led to the design of the stage on several different levels and with permanent stone wings. The object of the different levels is to permit vertical movement of the actors. The permanent character of wings and stage levels, while eliminating the necessity for most scenery and stage handling, does not prevent a variety of possible effects. The design for the theater includes a series of steps or small platforms kept in a special storage space under the stage. These platforms have been so designed that, being light

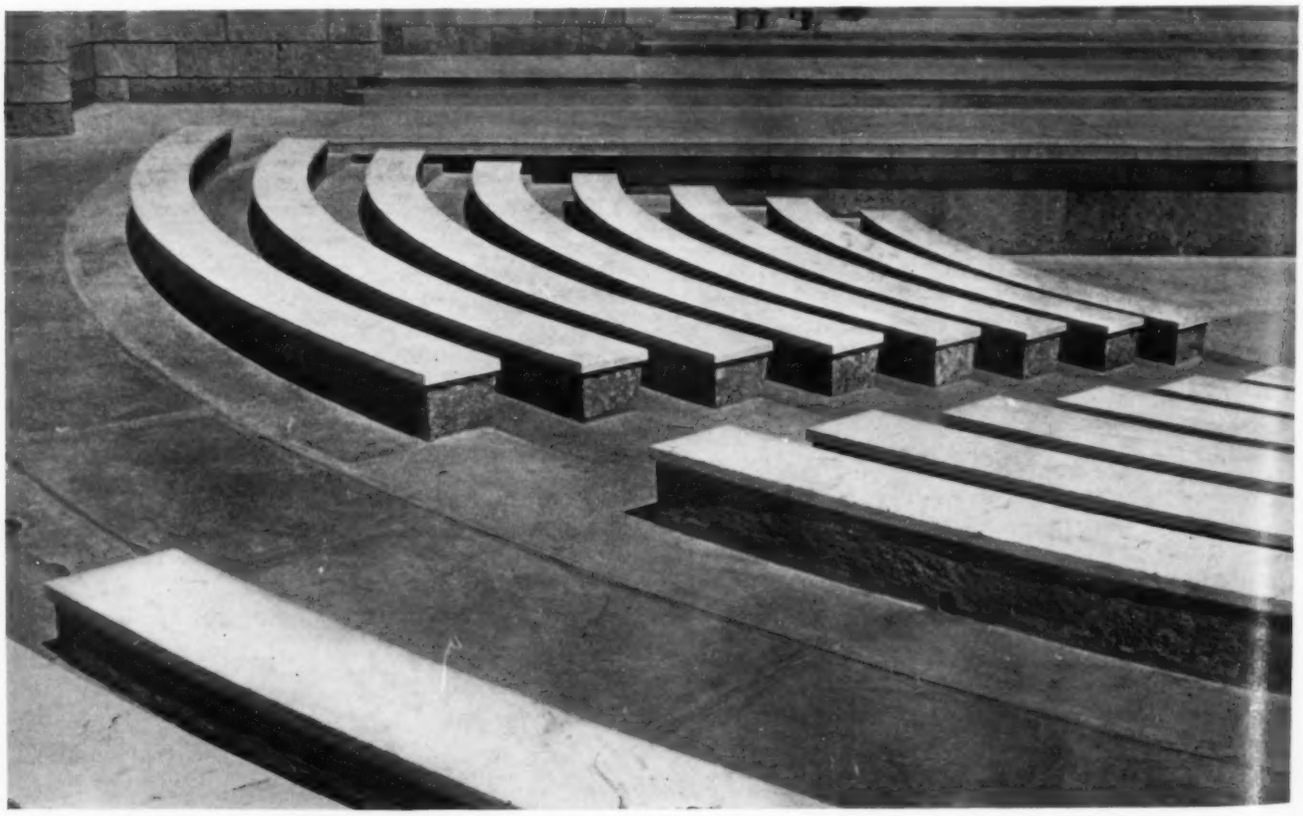


and easily carried, they may be used to change the arrangement of levels. Instead of four terraces 8 feet deep, eight 5-foot terraces may be obtained, or a level floor 16 by 36 feet in the center of the stage, or a flight of steps or a promontory at any point.

Properties may perhaps be restricted exclusively to seats and tables. Any other object placed on the stage must be justified by some purpose in the arrangement or composition of the space thereon, mere decoration, or even description being out of place. The hour, the climate, the weather, or the mood for each scene, may be established at evening performances by electric light, for which purpose Mr. Frederick von Osthoff, theater architect and director of the outdoor theater at Louisiana State University, has designed an up-to-date installation. The rest must be left to the actors and their costumes.

During the development of the design, other considerations served as secondary guiding principles. For instance, an examination of the soil which is reclaimed land resulted in the adoption of light reinforced concrete slabs for roof and floors, supported by continuous bearing stone walls. This was carried out in the design of the elevations, which are an attempt at expressing the structure, with consequent economy in the use of materials. Also the general direction of the gardens, following the Avenida del Puerto, shaped the plan of the theater as more nearly rectangular than the semicircle Greek theaters.





Growing Pains of Recovery

By THOMAS S. HOLDEN

THIS ARTICLE analyzes the present situation of the construction industry in the light of previous conditions similar to those of today, and draws upon Mr. Holden's long experience as Vice President of F. W. Dodge Corporation, in Charge of Statistics and Research. Mr. Holden is also president of the New York Building Congress, Inc.

THE WIDELY PUBLICIZED DANGERS of rapid rises in construction costs are real. It remains to be seen, however, whether they constitute an incident in the upward march of recovery or an indication of an unchecked trend that may make serious trouble for the construction industry hereafter.

The general level of wholesale prices of building materials, as shown by the U. S. Bureau of Labor Statistics index, was about 11 per cent higher in April 1937 than in April 1936. During the same twelve-month period, the average cost of a house in the $5,000 to $6,000 class rose 12 per cent, and in some localities by much larger percentages. This figure is based on a recent Government report covering ten representative large cities. The rising movement gained a considerable acceleration since the beginning of this year. Relative to the year 1926, building material prices appear to be somewhat out of line with general commodity prices, too. In mid-April the building material price index stood at 97, compared with 88 for general commodities.

To any one who recalls the records of previous recovery periods, all this has a familiar sound. That building-product producers and sellers and building labor should, at the present stage of building revival, attempt to raise their prices as high as they are able, is probably the most natural thing that could be expected to happen. Under such conditions, however, there seems to be a customary train of economic reactions which may effectively regulate the situation, if not complicated too much by Government price-fixing efforts. This can be illustrated by a record taken from the comparatively recent past.

Construction in the year 1923 was halfway up in a recovery cycle. Building material prices had been rising rapidly for some months, talk of material and labor shortage appeared in the press, followed by a counter-barrage of statements to the effect that recovery was endangered by the rapid rise in costs. The discussion of the time was strongly colored by recollection of the latest depression, which had resulted very largely from a commodity-price inflation. The short-lived boom of 1919 and 1920 had been accompanied by skyrocketing prices and the severe slump of 1920-1921 had been marked by a toboggan slide of prices. (The wholesale price index for building materials rose at the rate of 6½ points a month from 98 in April 1919 to 174 in April 1920 and then dropped at the rate of 5 points a month to 90 in August 1921; index numbers based on 1926 as 100.)

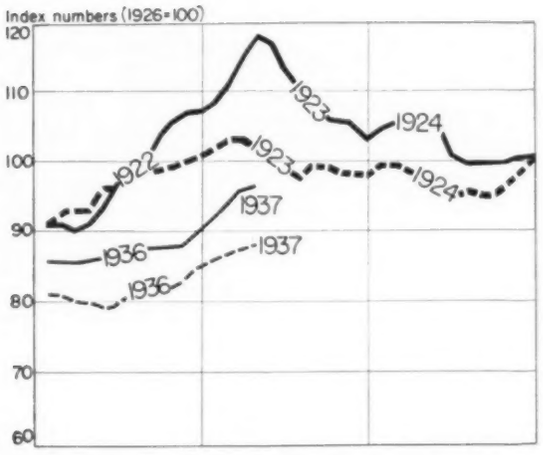
Compared with the preceding spectacular price inflation and deflation cycle, the rise in the index from 90 in September 1921 to 118 in April 1923 was not at an excessive rate, but it was sufficient to cause much concern, and the dangers of a new price inflation were widely publicized in the press, with many warnings of possible curtailment of the expanding construction program, just as has been the case this year.

Directly after the flying of the danger signals came the application of three sets of economic brakes.

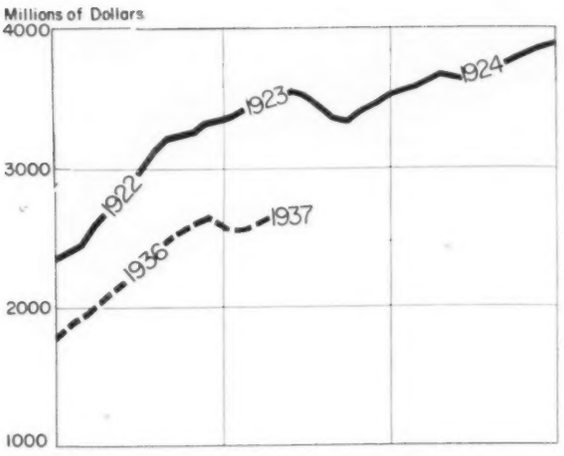
BRAKE NUMBER ONE was credit control.

The Federal Reserve System in effect sterilized a large portion of the gold in the country, by maintaining in the several Federal Reserve banks a much larger gold reserve than the legal requirement of 40 per cent. This was not in 1923 the action of the Federal Reserve Board, but was in the main the action of the Federal Reserve Bank of New York, then under the leadership of Governor Strong. The effect of central-bank credit control is to hold the general price level of all commodities within bounds. This was effective in 1923 and thereafter. In fact, the general commodity price level was so well stabilized during the "New Era" prosperity period that many people thought the business cycle had been definitely conquered.

The new powers given to the Board of Governors



Building material prices (heavy black line) and general commodity prices (heavy dotted line) rose rapidly to a peak in the first half of 1923; three sets of economic brakes were applied and prices became stabilized. The 1937 course of building material prices (thin black line) and general commodity prices (thin dotted line) has paralleled the upward movement of early 1923.



A minor recession in contract volume (figures for 36 eastern states) in the middle of 1923 (black line) indicated investors' unwillingness to pay high prices and served as one of the brakes on further price increases. Dotted line indicates contract volume in 1936 and 1937.

under the Banking Act of 1935 are supposed to give the Federal Reserve System a fuller control of general price levels than it had before. It remains to be seen how effectively these powers can act. Many financial observers today consider that a necessary condition for effective credit control is early balancing of the Federal budget, the present condition of which is a factor that was not present in 1923.

Obviously, the broad economic influence of combined budget-control and credit-control would affect construction costs along with the general trends of prices, rents and wages, without operating as a specific construction-industry-control.

BRAKE NUMBER TWO was buyer's control.

In early recovery stages potential buyers have fresh in their minds the bargain prices of the latest depression. They are not ready, as people are later at the crest of the prosperity wave, to pay any asking price for what they want. They slow down on purchases and collectively put a check upon expanding prices. This operates with particular effectiveness in the construction field, since owners can usually defer their projects when they consider conditions to be unfavorable.

This happened in 1923. In the middle of that year there was a definite sag in the curve of construction contracts, after which the upward trend of the recovery curve was resumed.

The midyear slump that took place in 1923 is definitely shown in the construction-contract chart on this page. Even though of short duration, this temporary recession was a definite warning that costs had to be stabilized if recovery was to proceed. Building product producers and dealers had to choose between a volume-market and a high-price market.

BRAKE NUMBER THREE was competition control.

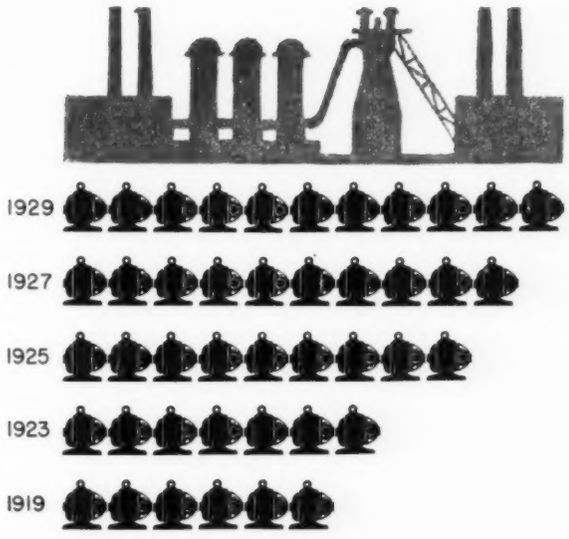
When the construction industry is only halfway back to recovery the total volume of business does not employ the entire productive capacity of material producers or the entire personnel of building-labor organizations. Competition is a definite brake on rapid price rises, probably more so in the field of material prices than in the field of wage scales.

At such a time, shortages of building materials and equipment, if they actually exist, are most likely to be temporary. Production can be readily stepped up, existing plants can be expanded and new companies and new plants can come into production.

All of these things happened in 1923. After the temporary recession, a continually expanding construction volume encouraged a great expansion in plant capacity for production and equipment. In the accompanying chart the horsepower applied to manufacture of sixteen classes of basic materials is used as an index of productive capacity. After a considerable increase from 1919 to 1923 there was a further increase of 53 per cent from 1923 to 1929.

With this year's probable construction volume somewhat less than that of 1923 and about half that of 1928 the competition brake promises to be highly effective at this time. It does not seem at all probable that mate-

Productive capacity for building materials (as measured by the installed horsepower in sixteen basic material industries) was large in 1923 and continued to increase through 1929, increasing competition and stabilizing prices



Each motor represents 300,000 hp.

rial shortages can be more than local and temporary.

Potential competition is probably greater and more varied in character than ever before. Here are some of the kinds of potential competition:

1. Between producers and sellers of the same materials.
2. Between different classes of materials (wood-frame and brick, steel and reinforced concrete, etc.).
3. Between new construction methods and traditional methods.
4. Between urban construction and suburban and small-town construction.

LABOR COSTS of construction are closely related to items 3 and 4.

While material prices were generally kept at fairly stable levels from 1923 through the peak years of the last boom, there was a fairly steady rise in hourly wage-scales through the expansion period. This was partly due to the great rise in urban building in strongly unionized centers, with the added factor of bonuses paid to labor on large speculative projects when the boom was at its height. Union wage-scales are obviously less subject to competition control than material prices.

However, high building-trade wages resulting in mounting construction costs will undoubtedly encourage the maximum amount of factory and shop-prefabrication that is practical, the use of new materials and simplified new methods of construction.

A combination of high prices of material entering into urban buildings with very high wages in unionized centers, added to existing high city taxes and high city land values, would probably give further impetus to the decentralization movement that has already been so strongly in evidence.

Just as producers and sellers of materials are collectively faced with the choice between large volume at moderate prices, so also is building labor faced with the choice between more working days per year at moderate hourly rates and fewer working days for fewer mechanics at high hourly rates.

After the three sets of economic brakes gained control of the price situation in 1923, and removed the price-inflation threat, the construction industry attained an unprecedented volume of business and a degree of prosperity hitherto unknown. Four of the prosperity years (1925 through 1928) each recorded total contracts twice as great as the total 1923 volume. When trouble came in 1929, it was not the result of the anticipated danger of commodity price-inflation, but of other quite different abuses of the country's expanded credit mechanism.

With respect to the present situation, we may fairly conclude that, provided credit and budget controls (BRAKE NUMBER ONE) effectively check general commodity price inflation, the control factors inherent in the present stage of recovery and in the highly competitive construction market should hold construction costs within fairly reasonable limits, even though a temporary minor recession in construction volume, like the one in 1923, may be required as a stabilizer. In fact, preliminary construction contract figures for the month of May indicate that a recession of this character may be coming into being at the moment this article goes to press.

Photos by Monroe Carrington, Inc.

JEWEL THEATER, BROOKLYN, NEW YORK

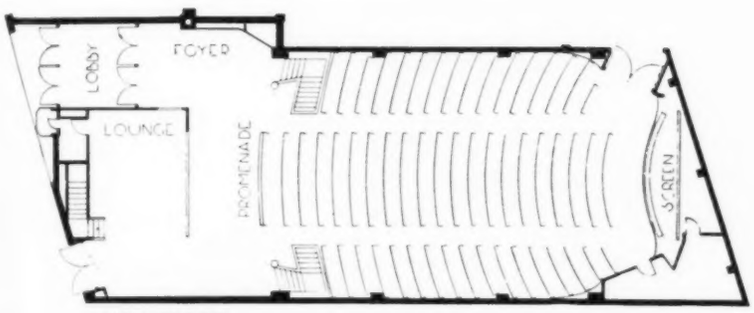
BEN SCHLANGER, ARCHITECT

JEWEL THEATER is built on the site of an old theater and a portion of a public market. The building is practically new as only the walls and part of the roof of the old structure were utilized. The width of the building in the narrow portion is 40′-4″ and 45′ in the widest portion. The length is 104′. There are 352 seats on the main floor and 176 in the balcony. Chairs are spaced 2′-10″ back to back. The floor slope is of a modified incline type as shown on the section. A main floor lounge is in direct line with the auditorium and separated from the standee area by a low barrier; thus the performance can be seen as well as heard from the lounge. Another lounge in the basement gives access to men's and women's rooms.

In the auditorium, the wall illumination is continuous from rear to screen. The walls are divided vertically into sections, each forming a shallow recess in a parabolic curve adjusted to reflect light from cove lamping back to the auditorium. Cove lamping is in three colors with dimmer control; the lamps are spaced 10″ o.c.

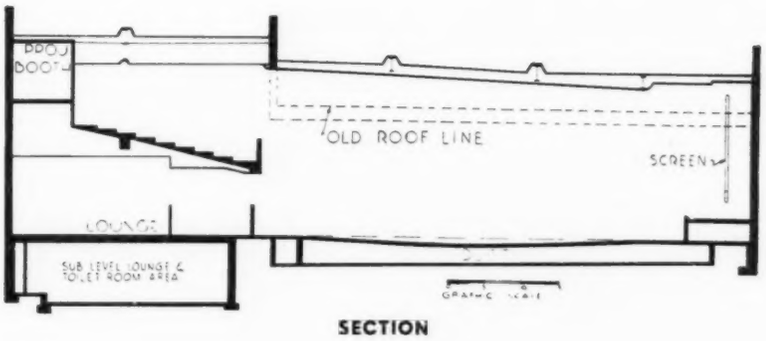
There is a complete air conditioning system, well water being used as cooling agent for summer operations. Fan and cooling equipment are next to the projection room. The ducts extend along the cornice on both sides of the auditorium, with five grilles on each side and two on the proscenium wall. Air is exhausted for recirculation through a central duct under the auditorium floor from mushrooms located under the three middle chairs of each row of the middle bank. The fan capacity is 1,800 cubic feet per minute with a 7½ hp. motor.

PROMENADE AND STAIRS Leading to the Balcony



MAIN FLOOR

BALCONY



SECTION

Photos by Monroe Carrington, Inc.

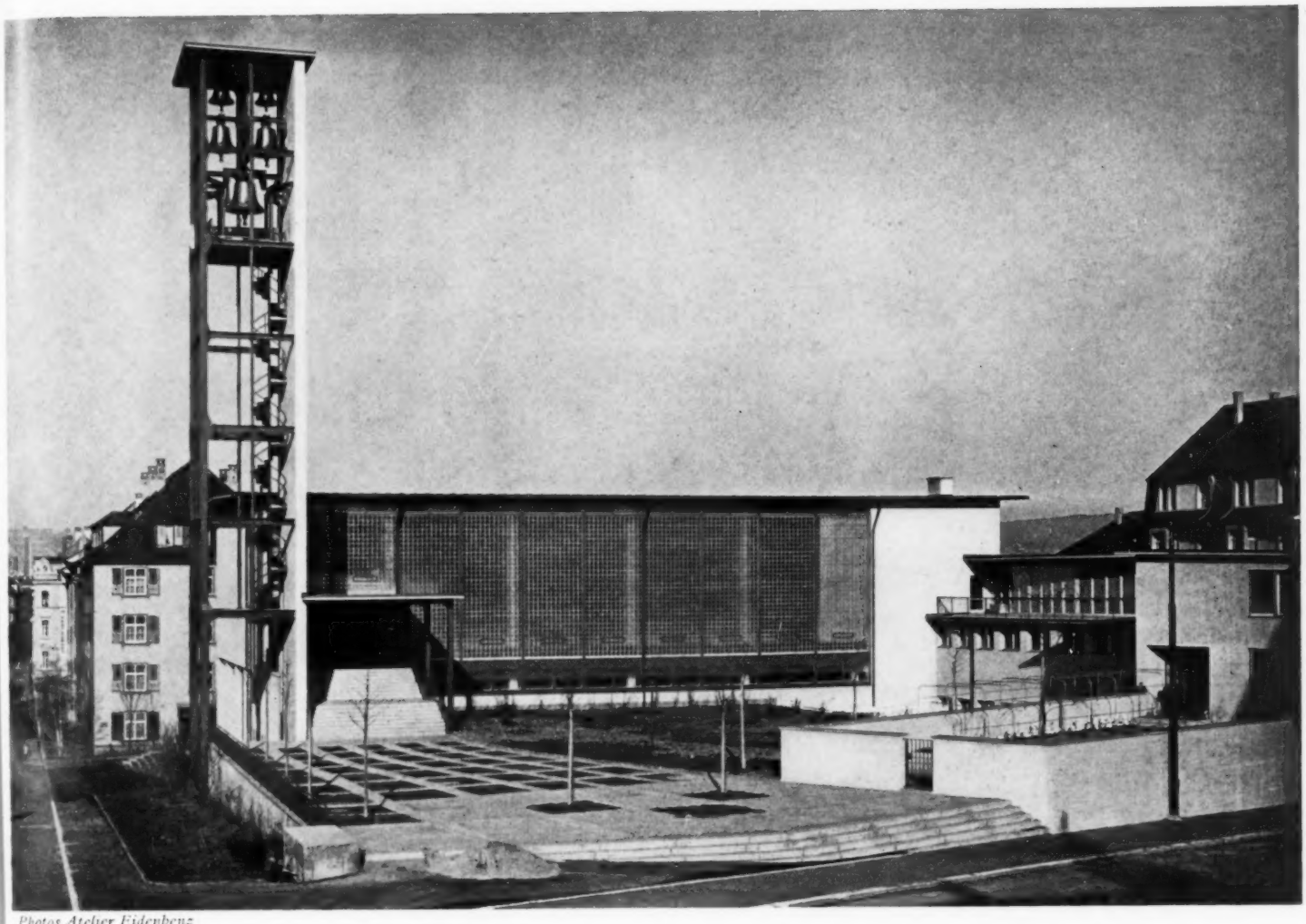
1

2

JEWEL THEATER, BROOKLYN, NEW YORK

1. **THE AUDITORIUM viewed from the balcony seats.**

2. **THE LOUNGE separated from the promenade by a low parapet, from where the performance can be seen as well as heard.**



Photos Atelier Eidenbenz

THE SAINT JOHANNES CHURCH AT BASLE, SWITZERLAND

K. EGENDER AND ERNST BURCKHARDT, ARCHITECTS

TEXT BY MAX ZIMMERMAN

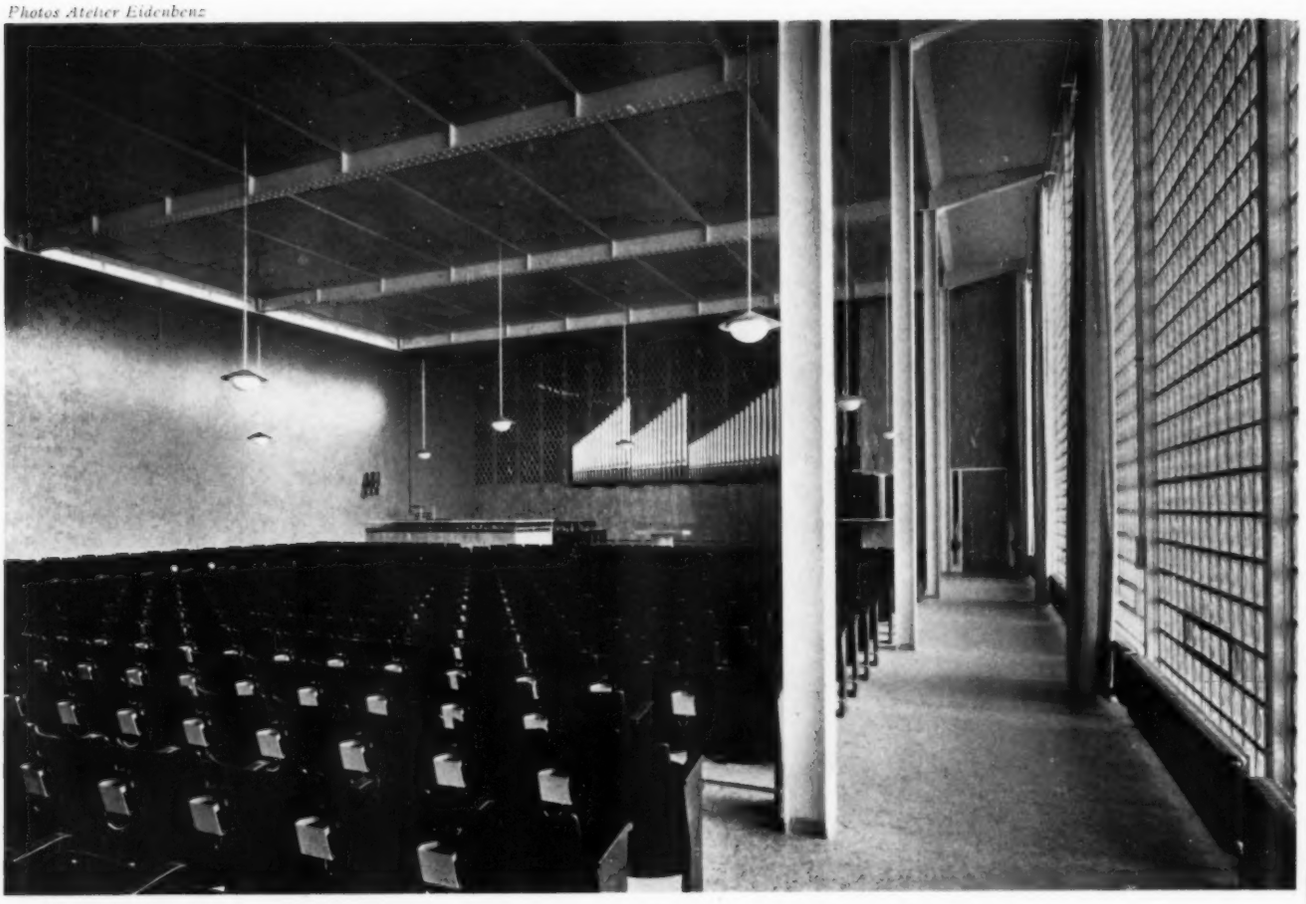
IN 1931 there was a general competition in Basle, Switzerland, for a new Protestant church, called the St. Johannes Church, in which one hundred and forty-one architects competed. Two architects, Mr. K. Egender and Mr. Ernst F. Burckhardt, won first prize. Later the appropriation for the building was reduced from 1.4 million to 800,000 Swiss francs, and another competition was held. The same architects won again.

It is surprising that a very modern church was allowed to be built in conventional Basle. This is partly due to the fact that the church is located in an outlying district of the town, between modest apartment houses, where the Society for the Protection of Tradition was helpless. As the funds were limited, the church had to be built in simple fashion. This use of very simple forms, and the exclusion of everything mystical, and of all handicraft humbuggery, is in harmony with the character of Swiss protestantism, which is built up from the teachings of Zwingli.

The arrangement consists of one main building with a tower, on the first floor of which there is an auditorium containing eleven hundred seats, and on the ground floor a community meeting room with six hundred seats and a stage. In adjoining buildings are classrooms, and apartments for the minister and sexton. The tower, which at first the architect wanted to omit, but which was demanded and paid for by the community, is a simple bell-carrier. The church is lighted on one side with glass brick. The steel construction inside is left plain and painted white. The ceiling is of natural birch siding. The uncomfortable old-fashioned benches have been replaced by modern theater seats.

Considerable discussion has been carried on lately in Switzerland concerning the interior of a Protestant church, especially as to the arrangement of choir, pulpit, and organ. Members of the Zurich Engineers and Architects Association have conferred with prominent churchmen on the subject. The following conclusions resulted from the conferences: (1) Since there is no high altar in Swiss protestant churches, the idea of symmetry can be left out; (2) the minister himself, being less important than his spoken words, should not be the center of attention; (3) the organ and choir stalls should be in full view of the congregation.

Photos Atelier Eidenbenz

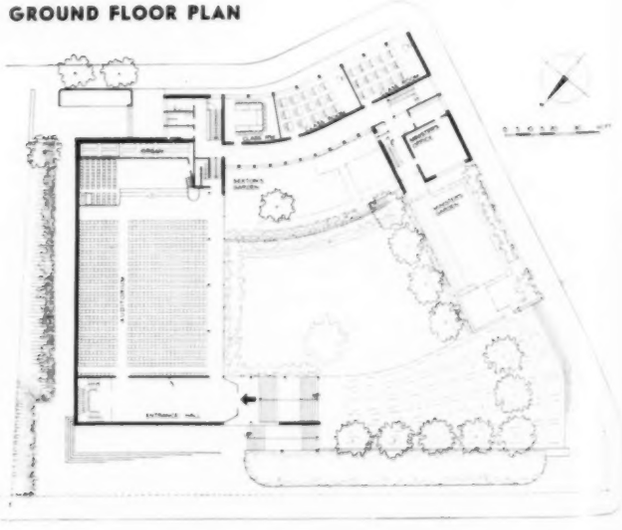


INTERIOR VIEW. Comfortable seats take the place of old-fashioned benches.

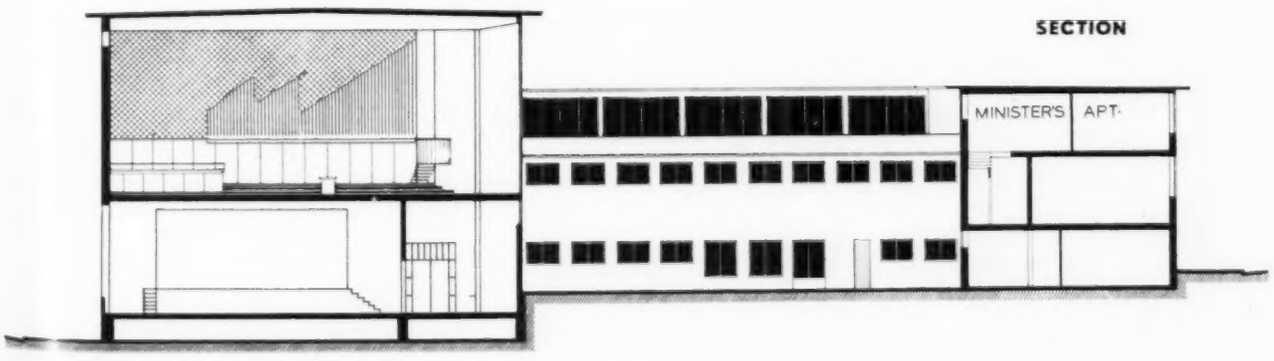
THE SAINT JOHANNES CHURCH AT BASLE, SWITZERLAND

SECOND FLOOR PLAN

GROUND FLOOR PLAN



ENTRANCE TO THE COMMUNITY ROOM and view of the bell tower which makes a characteristic feature of the church.



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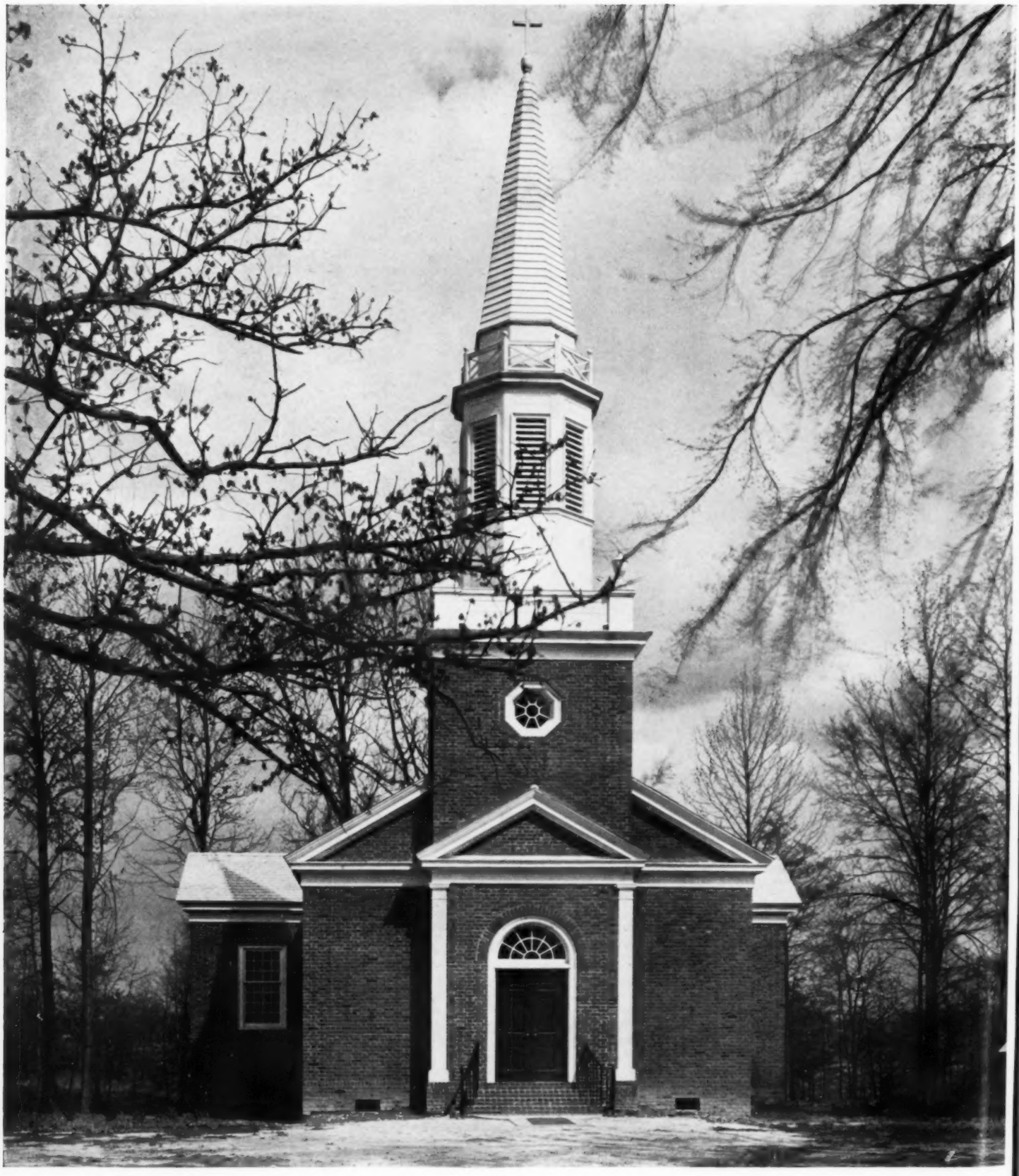
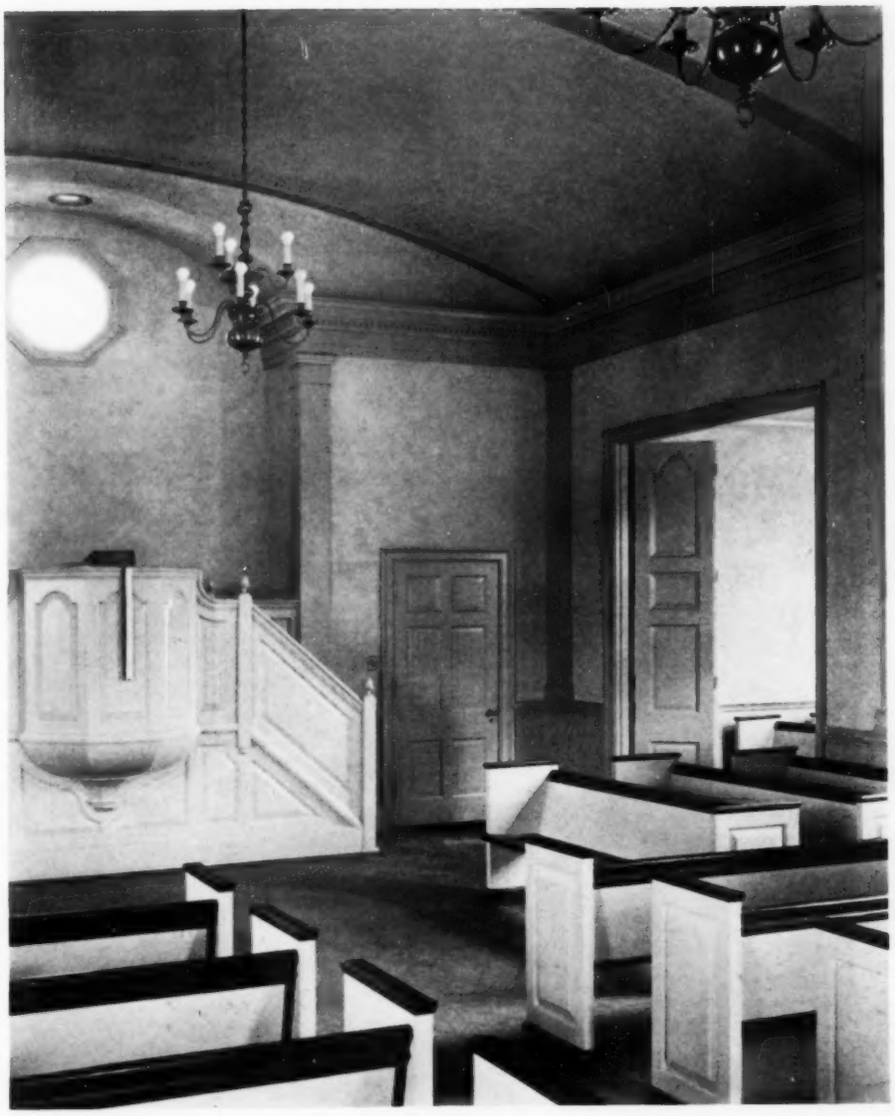
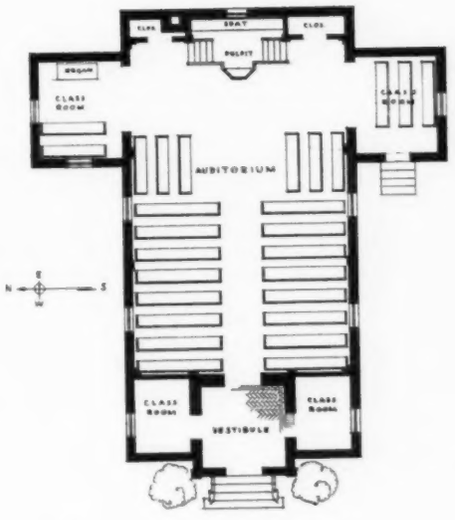


MINOR MEMORIAL M. E. CHURCH SOUTH
NEAR WALLS, MISSISSIPPI

LUCIAN M. DENT,
ARCHITECT

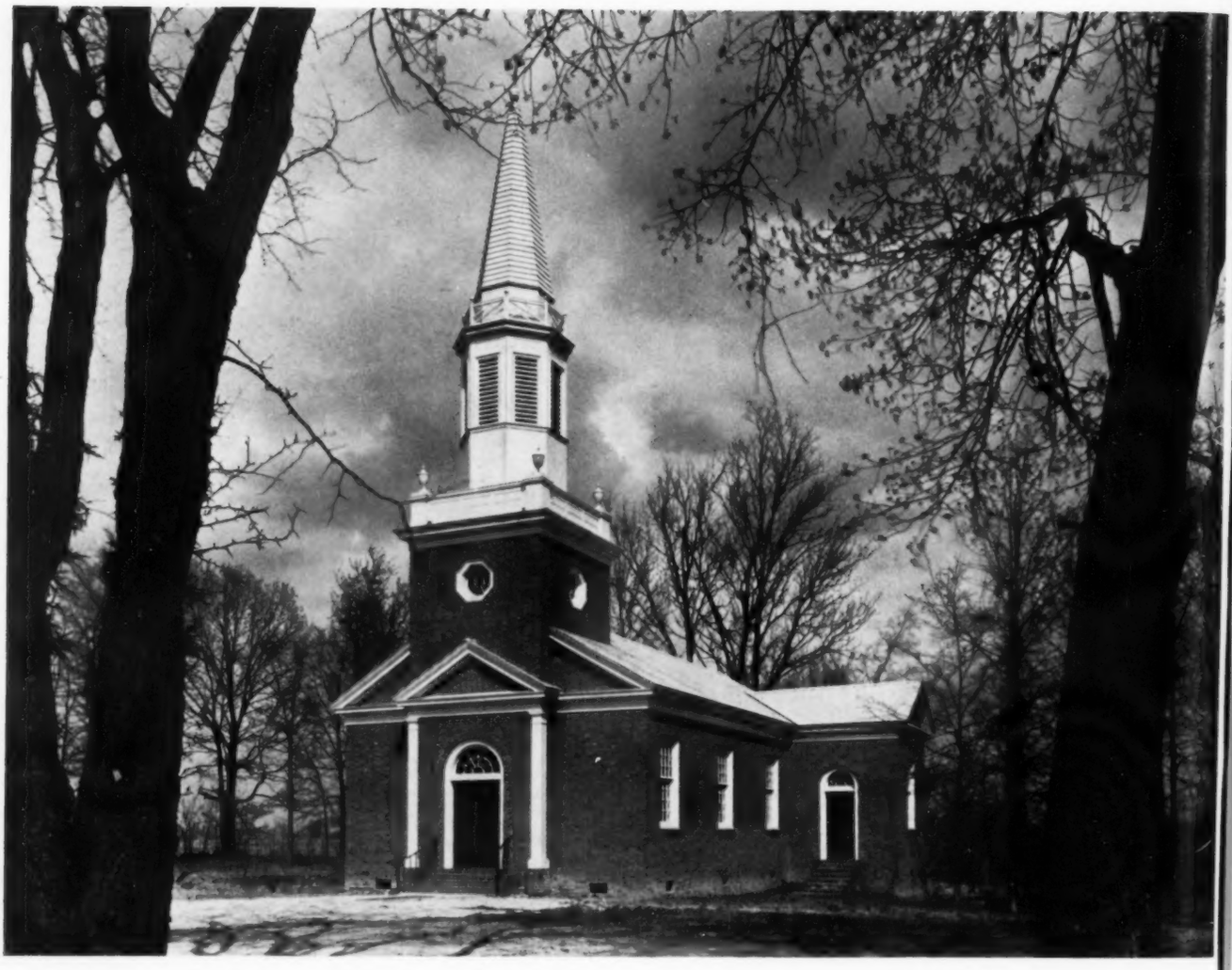


VIEW OF THE PULPIT



PLAN

MAIN ELEVATION



MINOR MEMORIAL M. E. CHURCH SOUTH, NEAR WALLS, MISSISSIPPI

SHORTLY BEFORE 1900 six Methodist Prohibitionist ladies held an indignation meeting against a bawdy saloon at the neighboring crossroads. This wrath was so effective that the patrons abandoned their rendezvous which was promptly appropriated by the ladies, who established in it a Sunday School.

Ten years later these same ladies had succeeded in collecting enough money to defray the expense of destroying the saloon building and clothing their Sunday School in more churchly garb—a very simple frame building with a gabled front ornamented by a cross.

Meanwhile, Judge H. Dent Minor established his residence in the neighborhood, became interested in the little Sunday School and, in 1936, finding the building greatly in need of repairs decided to give to the community a new church as a memorial to his wife. The old building was demolished and the Minor Memorial Church built on its site.

The building is used primarily for a Sunday School. The Adult Bible class, which is the largest class, meets in the Auditorium. The transepts are closed off with folding doors to form classrooms for two intermediate classes, and the two small rooms at either side of the vestibule are for primary classes.

Being a Methodist church, there is no altar and the pulpit is the center of interest. When the building is used for church services the small rooms at the entrance are used for coats, and doors to the transepts are opened to give a seating capacity of approximately two hundred. A small basement under the northeast corner contains a pipeless furnace and coal storage.

The exterior walls are brick veneer except the spire which is solid brick. The brick is hand-made laid Flemish bond. The vestibule has brick walls, brick paving, brick cornice, and wood-paneled ceiling. The remaining interior walls and ceilings are sand-finished plaster with gray coloring mixed in the plaster. All woodwork, including pews, is painted a slightly darker gray than the plaster.

The floor is blue asphalt tile. The lighting fixtures and finished hardware are colonial brass. The tower is sheathed with vertical shiplap—random widths—beaded joints. The spire is weather boarded—6″ to the weather. The roof is asbestos shingle.

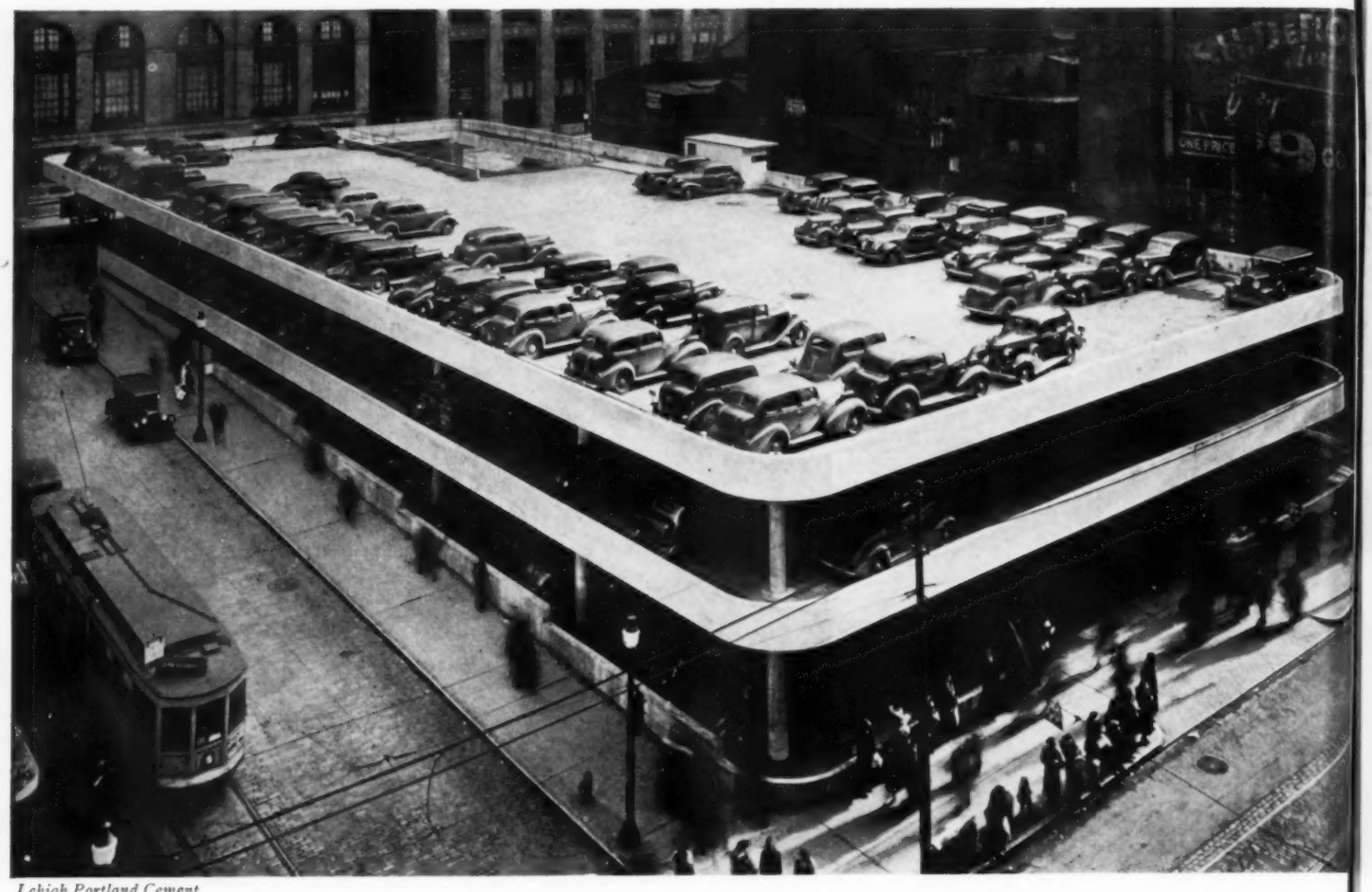
The tower contains a 600# bell. All exterior wood painted white except the doors which are painted shutter green. The double doors from vestibule to auditorium are similar to the exterior entrance doors with a similar arched glazed transom above.

The total cost, including pews and bell, is $15,000.

Photographs by Hedrich-Blessing

PARKING GARAGE FOR THE CUSTOMERS OF MARSHALL FIELD AND CO., EVANSTON, ILLINOIS

GRAHAM, ANDERSON, PROBST AND WHITE, ARCHITECTS

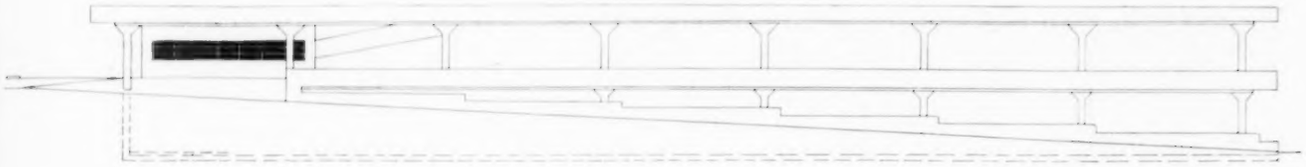


Lehigh Portland Cement

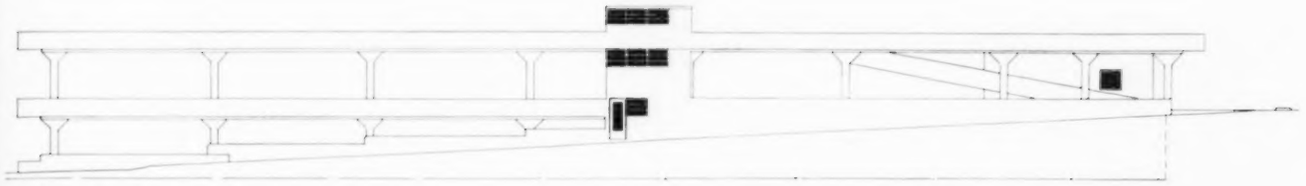
A THREE-TIER PARKING GARAGE FOR KAUFMANN

DESIGNED BY THE METZGER-RICHARDSON CO.

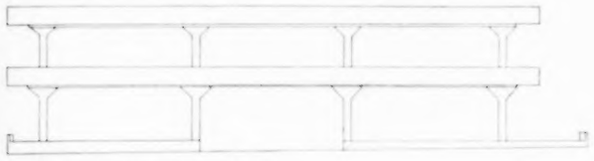
SIZE OF building is 100′ x 220′, providing 3 parking areas of about this size. The ground floor has an entrance from Smithfield Street, and also from the alley on the side of the building. The middle deck is served by two entrances; short incline on Diamond Street and from Cherry Way in the rear. The top deck is served by a 15 per cent ramp 27′ wide. The entire 3 decks will accommodate 450 cars as a maximum, and about 350 cars allowing plenty of maneuvering space. On account of the wide ramp and easily accessible entrances, more than 1,000 cars per day are handled in and out very efficiently. Columns are spaced 30′ on center both ways, which will park 8 cars in the outside bays, allowing a wide aisle in the center. Each floor was poured in a continuous operation without interruption. Lehigh early strength cement was used throughout. The approximate cost of the structure is $100,000—not including the land. Mellon-Stuart Company, Pittsburgh, Pa., were the contractors. The building was completed in three and a half months.



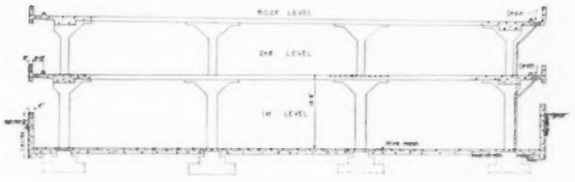
DIAMOND STREET ELEVATION



LEMON ALLEY ELEVATION

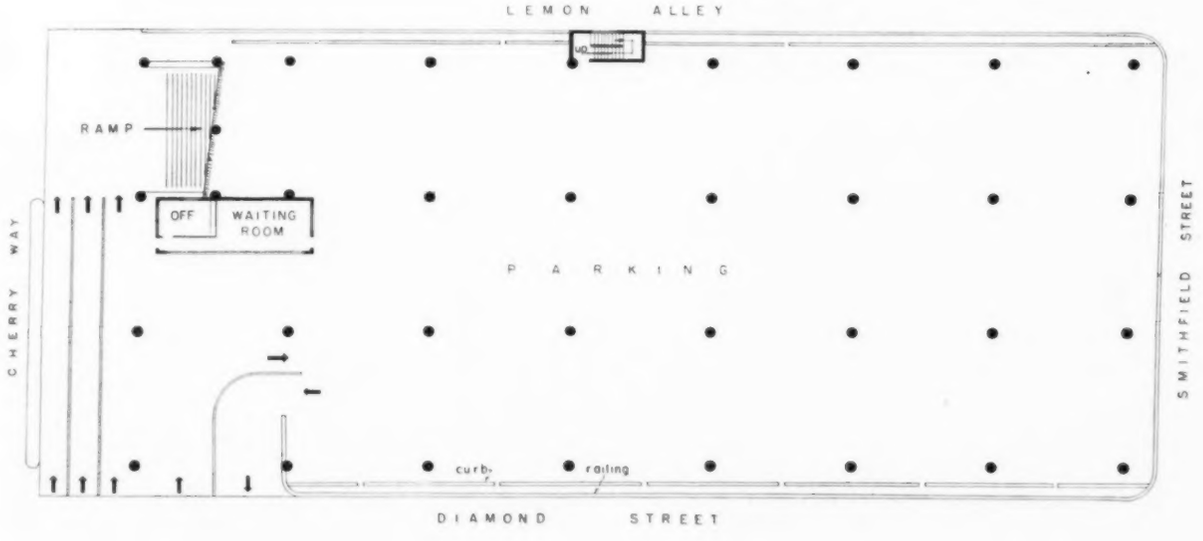


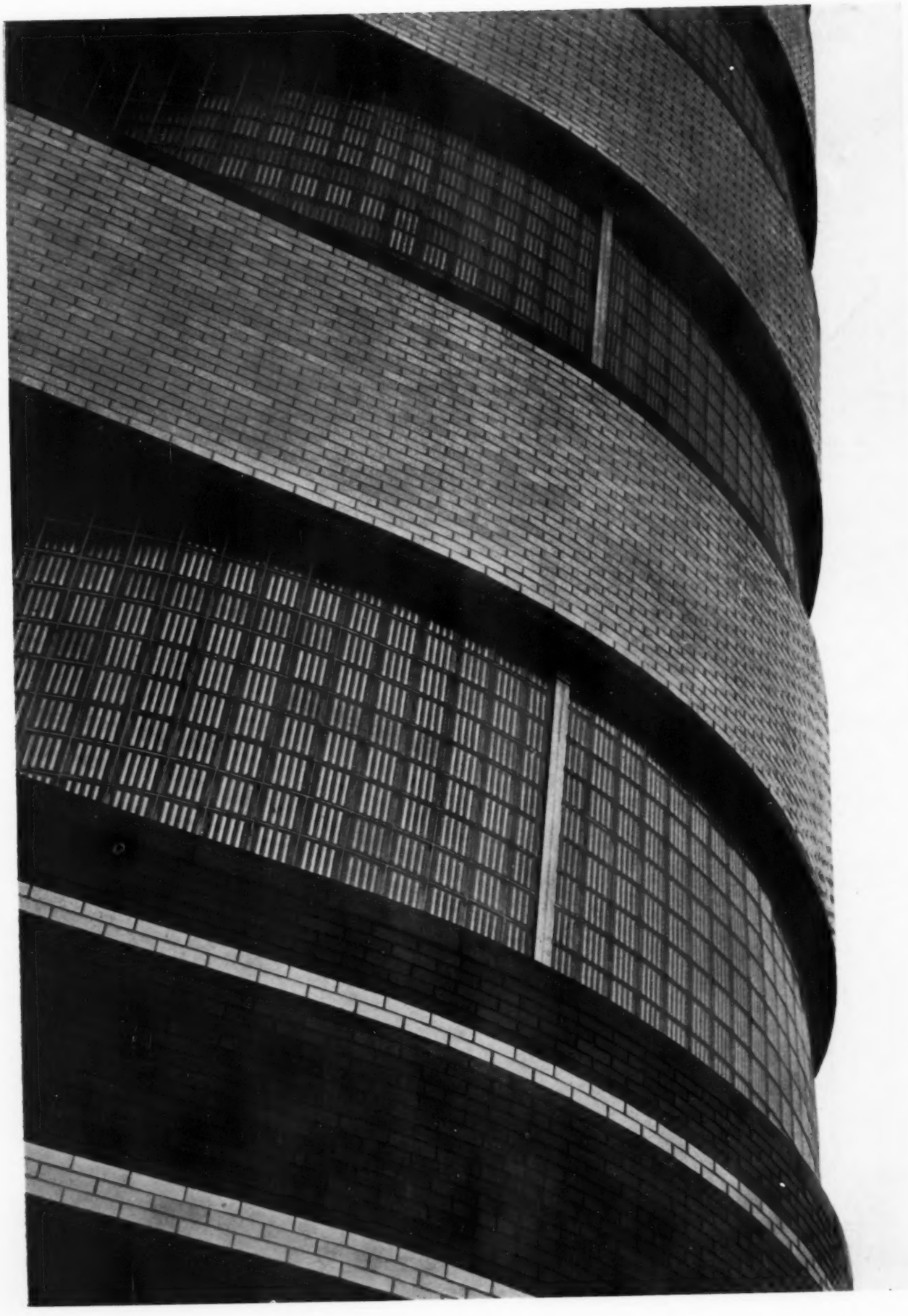
SMITHFIELD STREET ELEVATION



DEPARTMENT STORE, PITTSBURGH, PENNSYLVANIA

GROUND FLOOR PLAN





Photos by Lincoln

A DEPARTMENT STORE BUILDS A NEW WAREHOUSE

DESIGNED FOR THE HECHT COMPANY, WASHINGTON, D. C.

BY ABBOTT, MERKT & COMPANY, ENGINEERS AND ARCHITECTS

THIS BUILDING in the northeast section of Washington, D. C., covers the sizable area of 246 x 344 feet. It consists of a basement and six stories, and is built of reinforced concrete, flat slab construction, designed for warehouse loads.

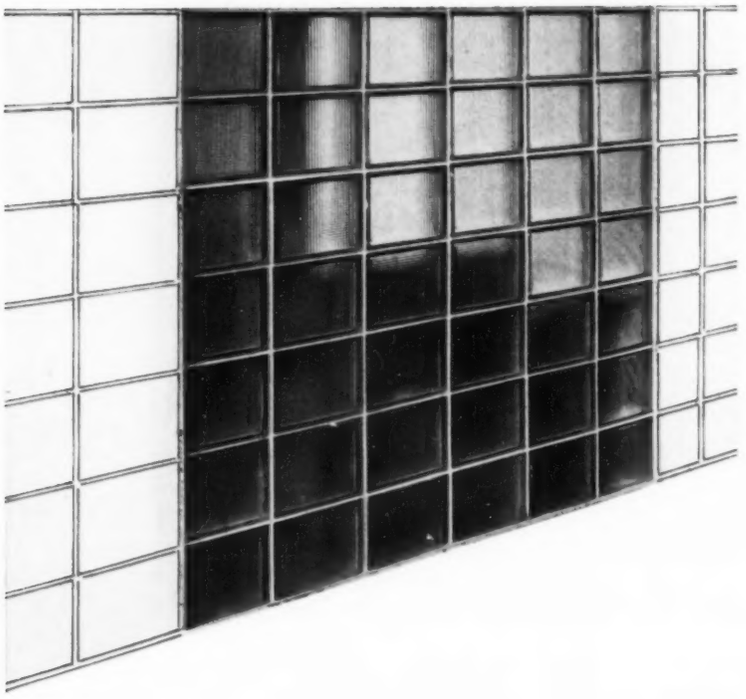
The ground floor covers the entire plot, while the upper floors are about 225 feet square. The basement is used principally for the heating plant and for mechanical equipment, including an incinerator. The heating plant is arranged for the use of either coal or oil fuel.

On the ground floor there is a railroad siding coming into the building for the receipt of merchandise, and the balance of this floor is given over to the delivery of furniture and packages and to motorcar repairs. The upper floors are devoted to the storage of goods and workrooms in connection therewith. The building is equipped with the most improved devices for convenience and economy in the operation of such a structure.

The exterior design of the building is modern in type and consists of horizontal bands of alternating masonry and glass. The exterior materials are terra cotta and enamel brick of buff color with black trim. The horizontal bands of glass, running continuously around the entire four sides of the building, are of Owens-Illinois glass block, with one steel-glazed sash in each panel. Incorporated in the glass block are three masonry signs, which are illuminated from the rear at night.

Three corners of the building are slightly rounded and the fourth principal corner has vertical cylindrical treatment carried up to the roof to a tower of glass block.

The building was constructed by the Consolidated Engineering Co. of Baltimore.



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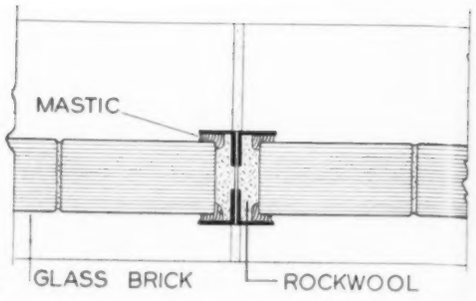

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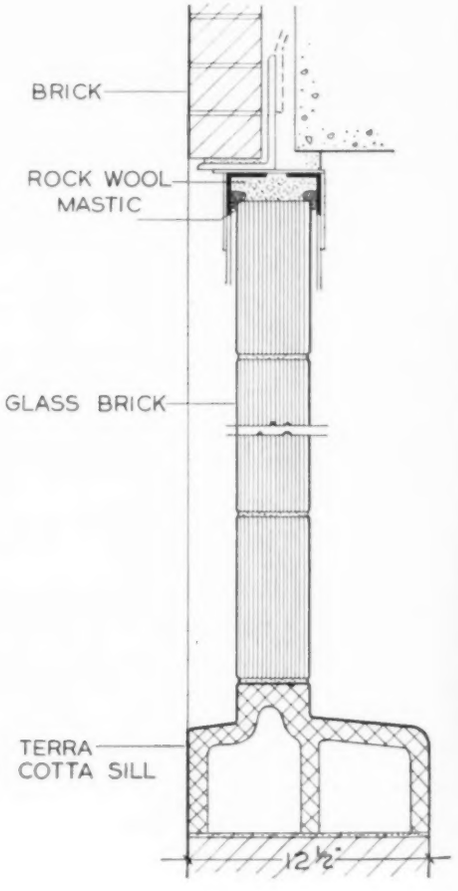
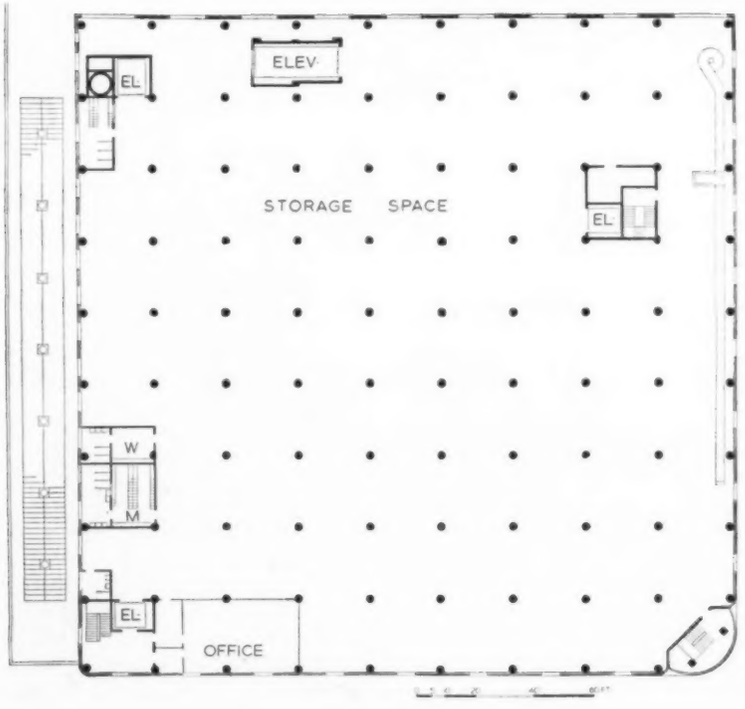
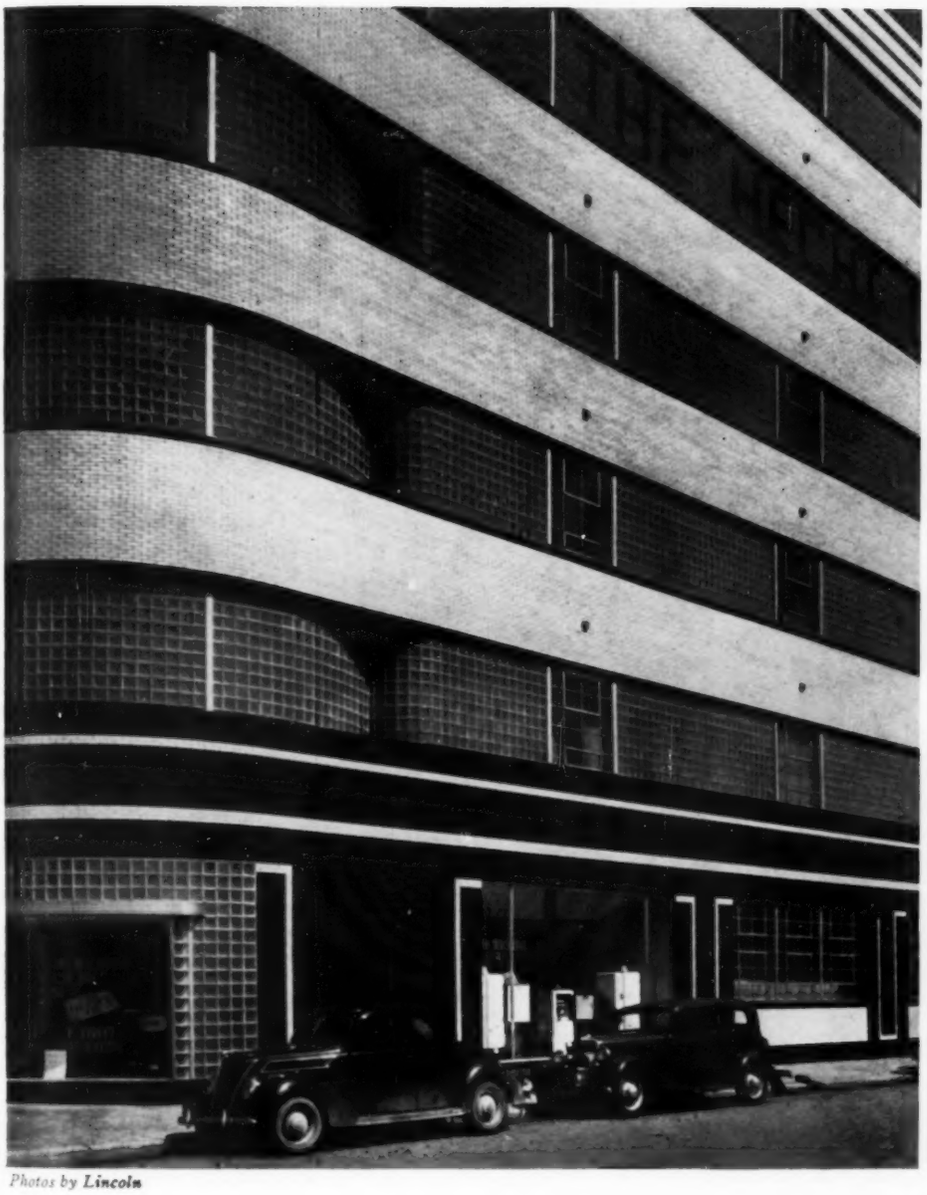


3

1. The glass blocks. 2. Horizontal, and 3. Vertical sections of the glass brick wall.



TYPICAL FLOOR PLAN



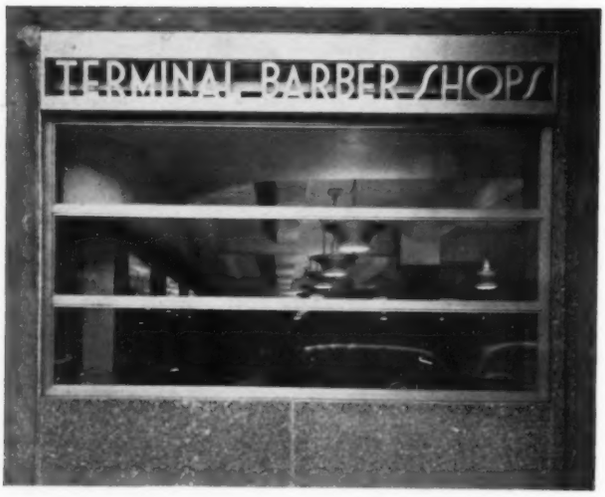
Photos by ***Lincoln***

DETAIL OF THE EXTERIOR. The windows of the ground floor are used for display.

VIEW OF THE ROUNDED CORNER

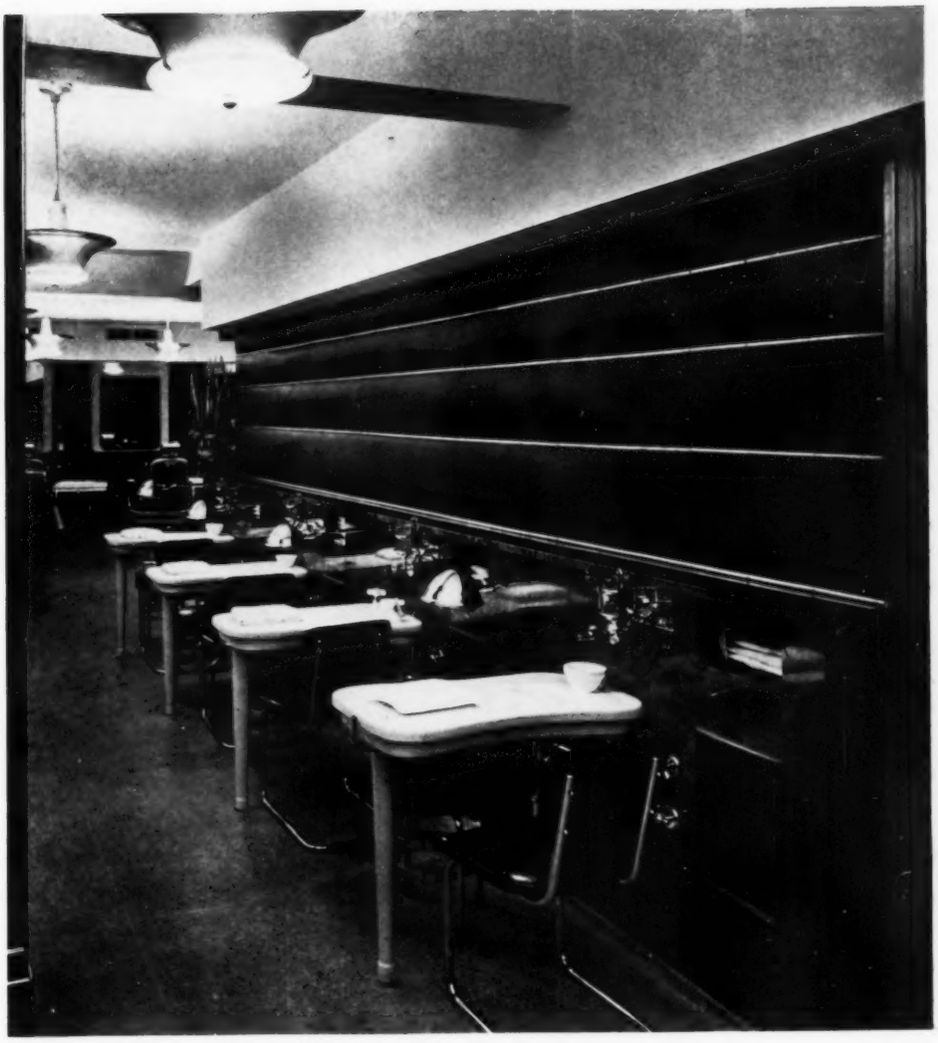
Photos by Paul J. Woolf

TERMINAL BARBER SHOP IN THE HOTEL LINCOLN



DESIGNED BY

THE ARCHITECTS attempted to produce a very simple and informal modern atmosphere. They utilized materials not common to the general run of barber shops. The walls are covered in an antiqued red Spanish fabrikoid by DuPont and the column faces in a jaspé linoleum. Where more common materials were used, quieter types were selected. The floors are of red verona terrazzo. The wainscoting behind the basins is of Bois Jourdain Grande marble. The mirrors are clear and are set be-

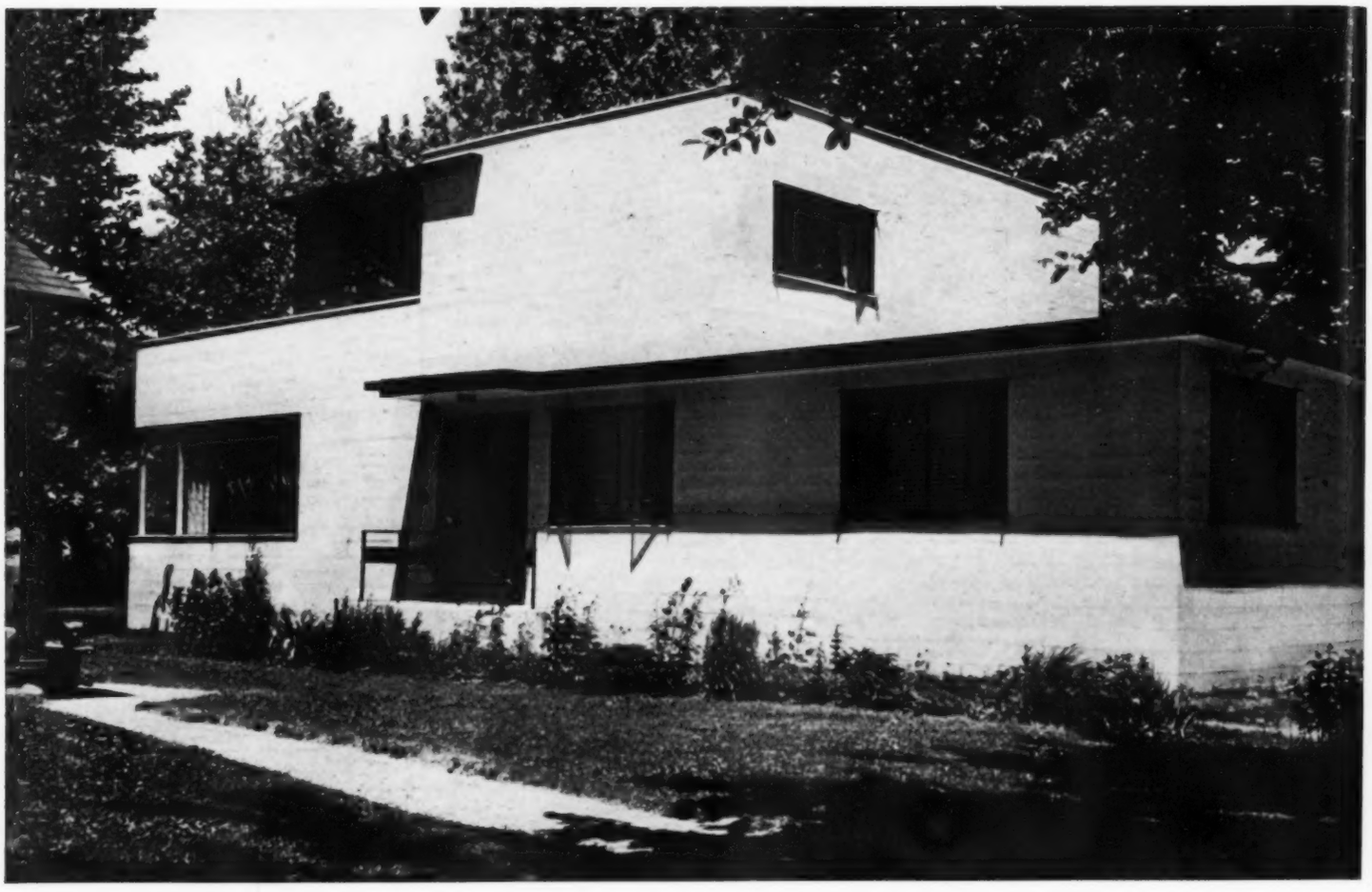


NEW YORK CITY

EUGENE SCHOEN AND SONS

tween walnut cabinets. A large satin aluminum and glass screen separates the shop from the Hotel Arcade, and smaller sash are set on the West 45 Street front.

The existing low ceiling condition prevented furring in the low level, and satin-finished aluminum Duplex-a-lites were chosen to furnish the necessary 20 foot-candles. The premises are air conditioned by ducts and grilles placed above the line of wall cabinets. The furniture is cream color enameled and covered in dark leather.



HOUSE FOR MRS. KENNETH BATES, EUCLID, OHIO

ALFRED CLAUSS, ARCHITECT

MATERIALS: wood frame and siding, Rockwood insulation, 4″ in walls and 6″ in roof; steel casement windows and doors flush on both sides. A complete air conditioning system with an oil burner was provided.

The basement is for storage, laundry and heating equipment. Living and sleeping quarters are on the ground floor, while the second floor contains a studio and a playroom.

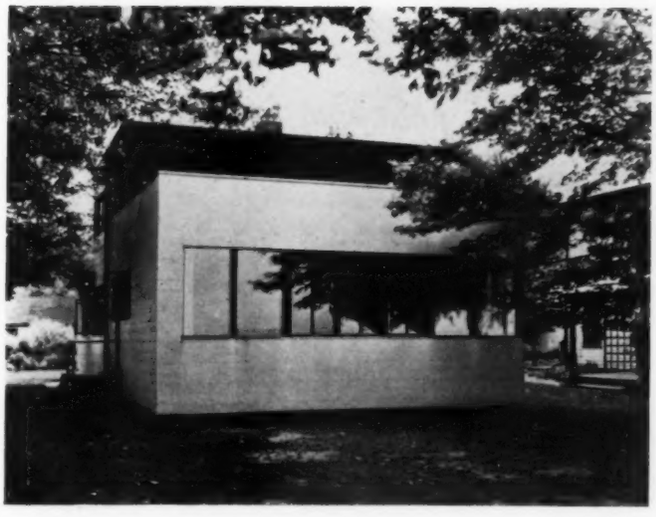
This house, located on the Lake Erie shoreline, cost approximately $8,500. Interiors and furniture were designed by Kenneth Bates.

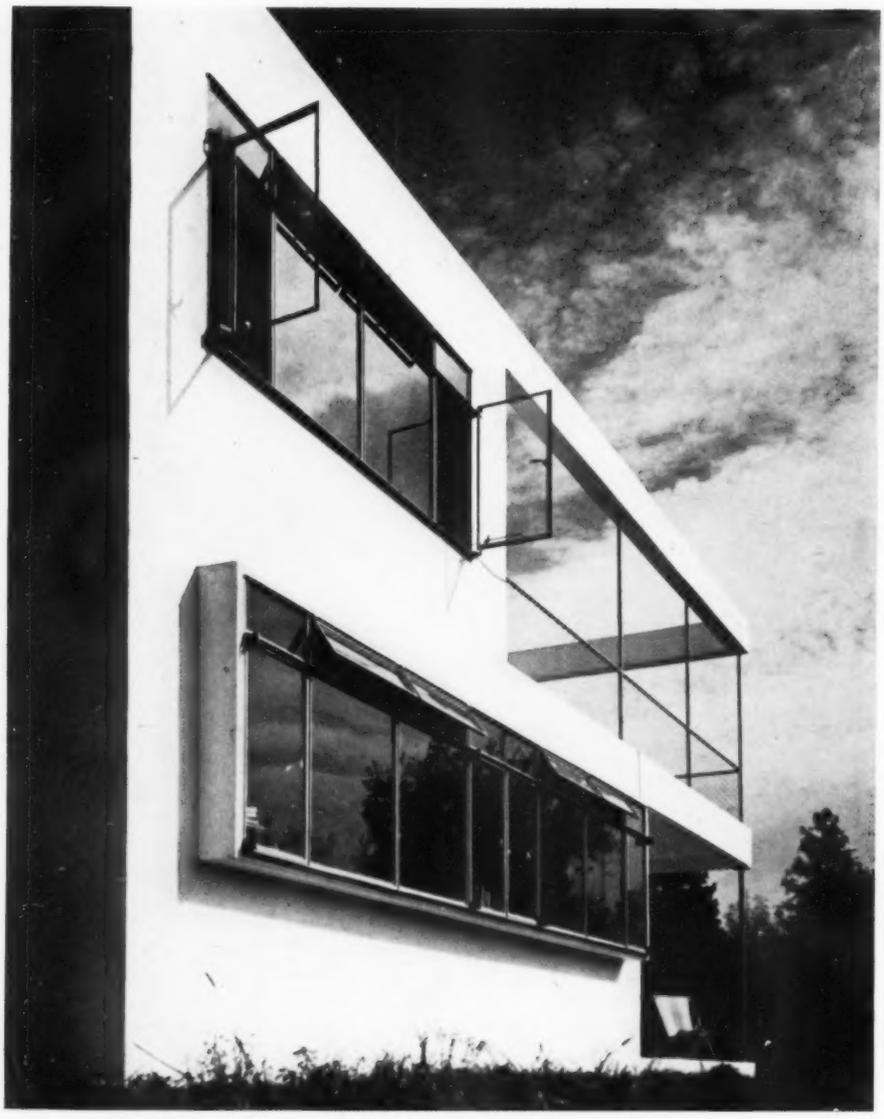
VIEW OF THE LIVING ROOM AND THE DINING CORNER with windows facing the lake.

Above: **VIEW OF THE LIVING ROOM CORNER.** The color scheme is blue and gray combined with natural oak. Below: **FRONT FACING THE LAKE** with porch and terrace on the second floor.

SECOND FLOOR

GROUND FLOOR

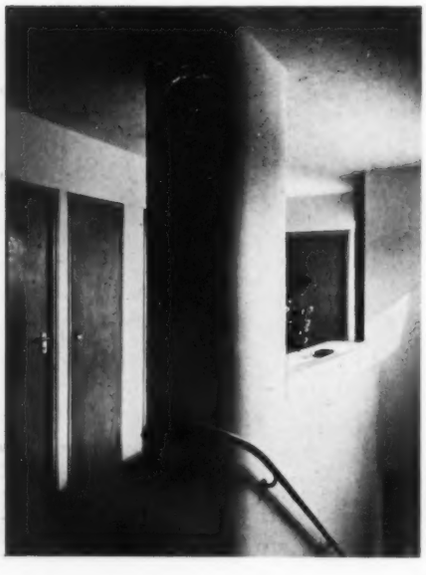




F. R. S. YORKE, A.R.I.B.A., has been practicing in London since 1930 and lately in partnership with Marcel Breuer, former professor at the Bauhaus. Yorke is editor of "Specification," and author of the well-known book on domestic contemporary architecture "The Modern House."

HOUSE AT IVER, BUCKINGHAMSHIRE, ENGLAND

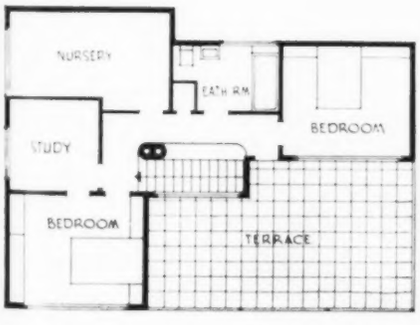
F. R. S. YORKE, ARCHITECT



THIS HOUSE, entirely open to the south and east, presents a happy balance between inclosed and outdoor spaces. Built of reinforced concrete walls and floors, with Celotex for roof and wall insulation, and Thermax partitions, the total cost is approximately $7,650 or 1/3½d. (32c) per cubic foot. The illustrations on this page show the south view of the house and the second floor landing; the fireplace flue forms a free-standing column.

SOUTHEAST VIEW

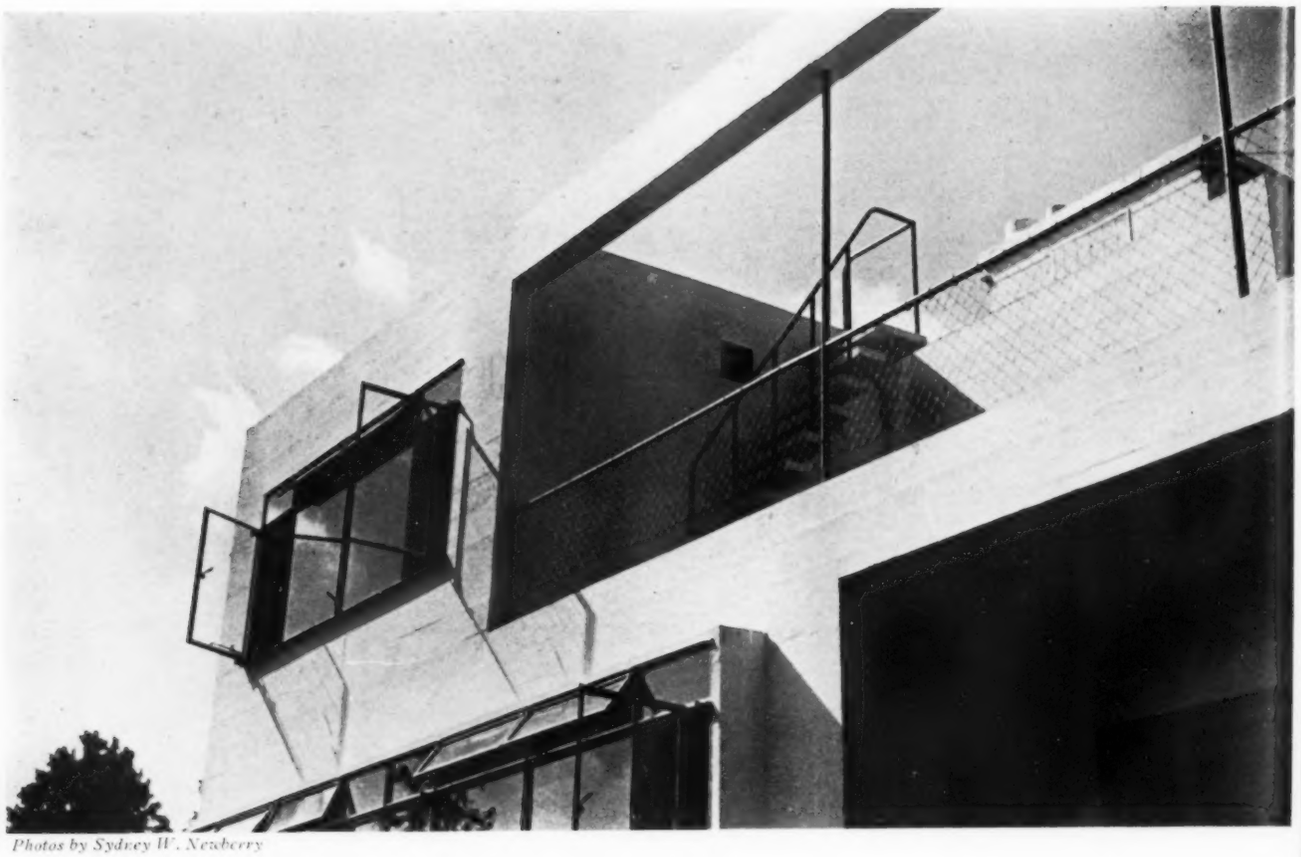
Photos by Dell and Wainwright



SECOND FLOOR

FIRST FLOOR

LIVING and DINING ROOM



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Photos by Sydney W. Newberry

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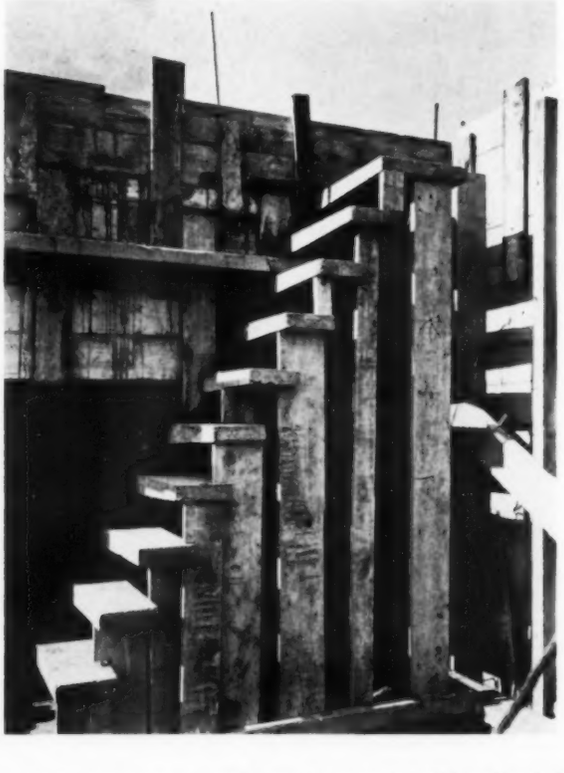


1. Exterior walls of reinforced concrete with untreated surface after removal of forms. A flat paint was applied directly to the concrete. 2. Leveling the floor surface over insulating tile. 3. Insulating partitions of Thermax (prefabricated, fire resisting, moderate thickness, plaster easily applied). 4. Cantilevered steps with temporary support leading to the upper roof.

"THE NEWBURY," NASSAU SHORES, LONG ISLAND

RANDOLPH EVANS, ARCHITECT

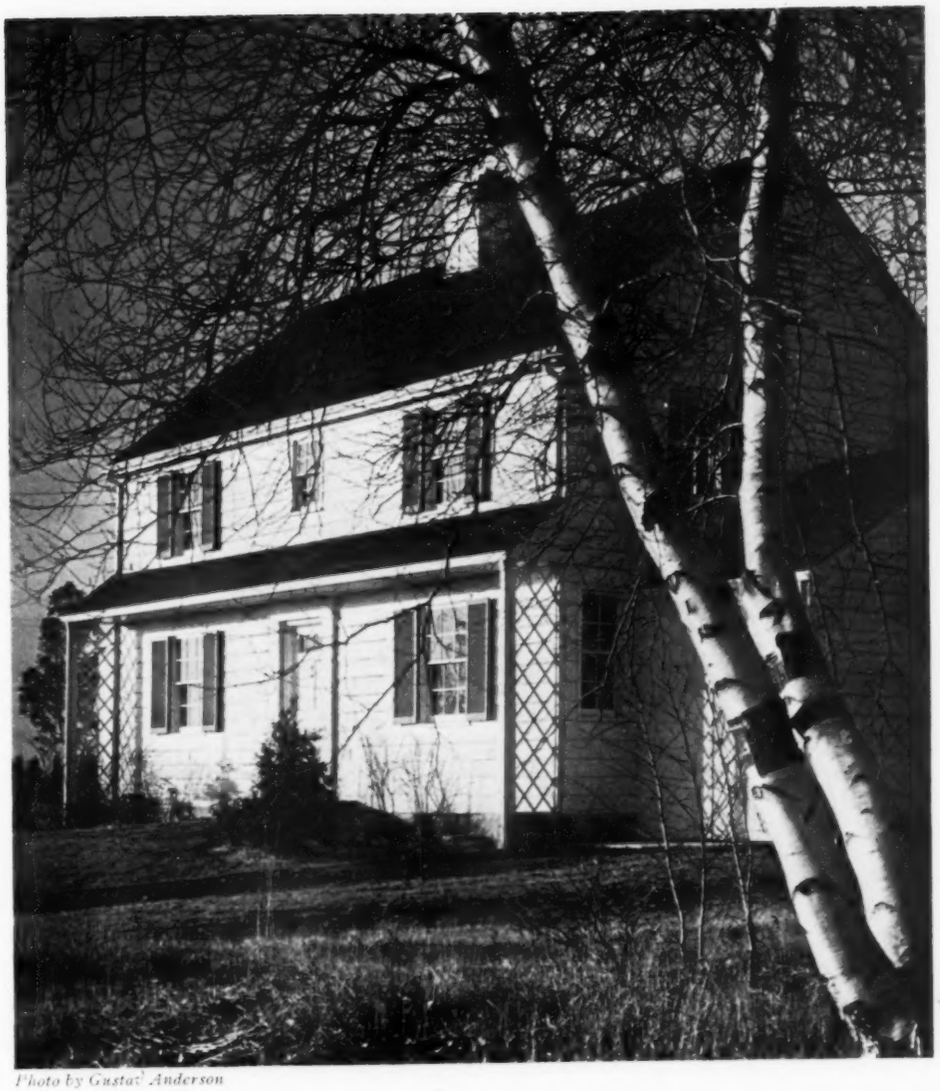
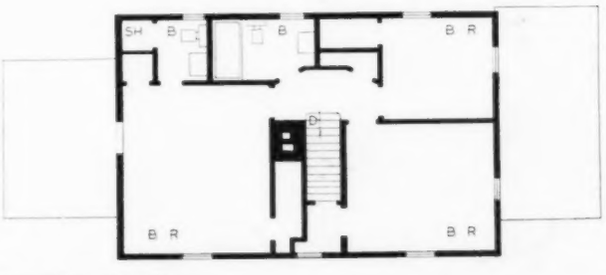
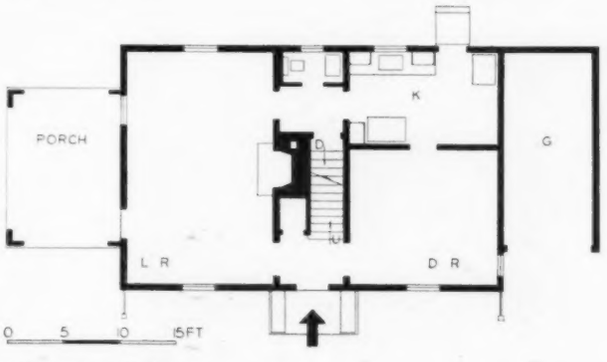


Photo by Gustav Anderson



SECOND FLOOR



GROUND FLOOR

FOUNDATION: concrete. STRUCTURE: wood framed; exterior walls, shingle facing; interior walls, plaster and wallpaper; tile in baths. ROOF: wood shingle. FLOORS: oak; baths, tile; porch and cellar, cement; kitchen, linoleum. WINDOWS: wood double-hung; steel casement in basement; standard glass; copper screens. LIGHTING: Colonial brass. BUILT-IN FEATURES: kitchen cabinets. HEATING: steam. INSULATION: side walls and second floor ceiling, aluminum foil. WATERPROOFING: integral. PAINT: Devoe and Raynolds. COLOR: walls and interior trim, white; blinds, green.

Photographs by Robt. W. Tebbs

HOUSE FOR THE ARCHITECT ROBERT FRANTZ, SAGINAW, MICHIGAN

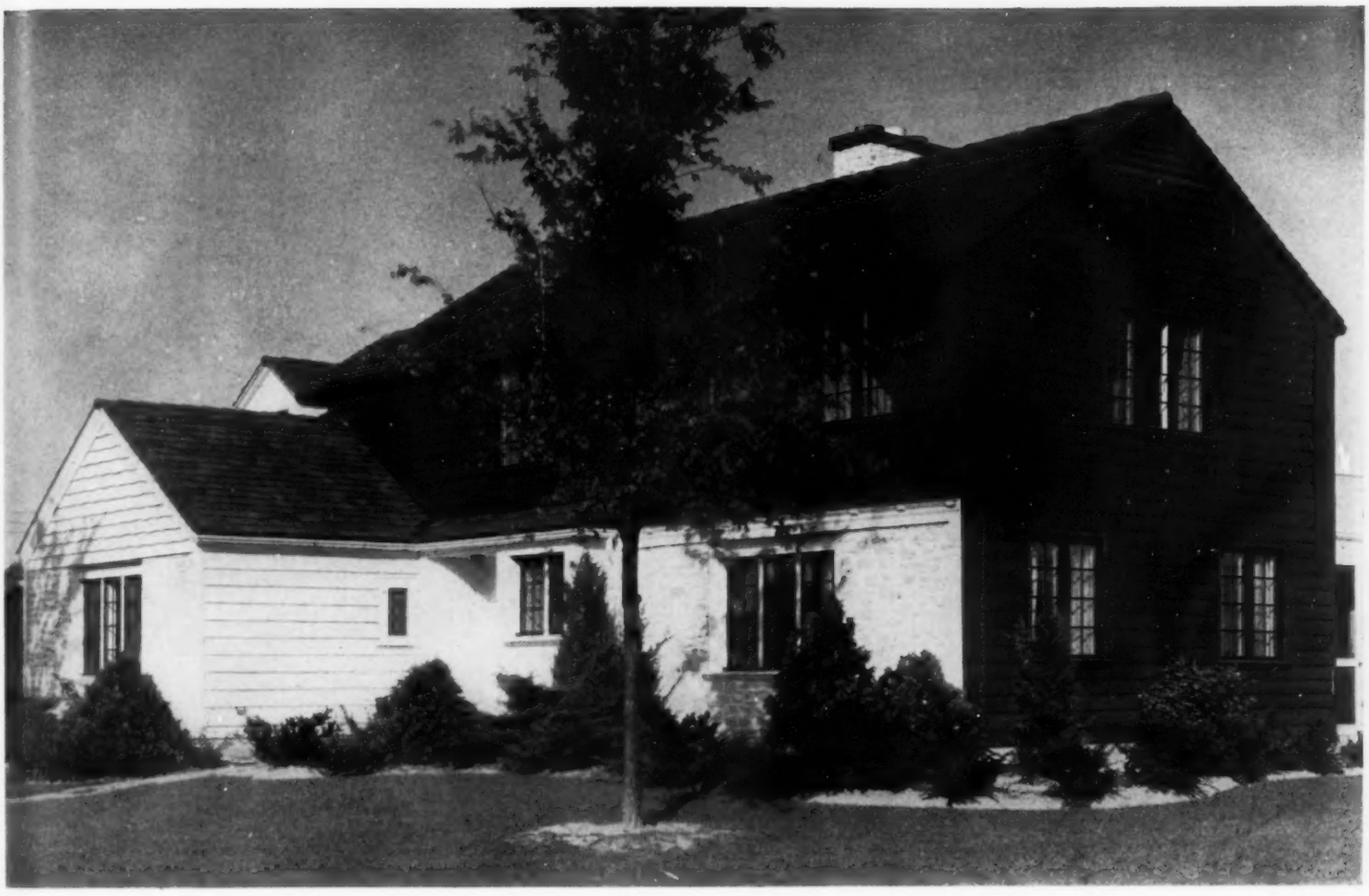
FRANTZ AND SPENCE, ARCHITECTS

GARDEN FRONT

GROUND FLOOR

SECOND FLOOR

This house for all-year use has concrete block basement walls, wood frame with brick veneer and stained cedar siding, roof of cedar shingles, oak floors, wood double-hung and a few casement windows with bronze screens in metal frames. Celotex later was used for insulation and asphaltic waterproofing for the basement walls. Steam heating system is provided with an oil burner. There are built-in features such as wardrobes, trays, radio, clock niche, refrigerator, woodbox for the fireplace, radiator housings.



HOUSE OF C. A. KOHLS, MIDLAND, MICHIGAN

FRANTZ AND SPENCE, ARCHITECTS

FIRST FLOOR

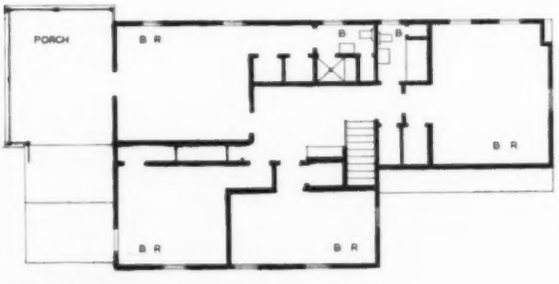
SECOND FLOOR

CONSTRUCTION: concrete block basement walls; exterior walls of wood frame with stained cedar siding also brick veneer and stone painted white; roof of Britanny shingle tile and canvas deck; oak floors; insulation of exploded mica applied to the side walls and second floor ceiling; waterproofing of asphaltic paint over cement plaster on walls below grade; heating by Rudy gas-fired furnace; Hope steel casement windows with bronze screens; built-in features; wardrobe, trays, radio, light units; approximate cost: $13,000 complete.

Photos by Gustav Anderson

HOUSE FOR H. N. FELTON, SUMMIT, NEW JERSEY

WILLIAM M. PAREIS, ARCHITECT



SECOND FLOOR

GROUND FLOOR

DESIGN-CORRELATION

TOWARDS PREFABRICATION OF FOLK-SPECTACLES

BY FREDERICK J. KIESLER

SCIENTIFIC DEVELOPMENT OF SOUND REPRODUCTION PROVES AN IMPORTANT INFLUENCE ON ARCHITECTURAL DESIGN OF THEATERS.

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Courtesy F. Crowninshield

If a photographed voice is used instead of a natural one in a stage performance, it helps to liquidate the "normal" architectural plan of the presentation, because it is unsuitable for the theater which is finally emerging from the noble seclusion of past-imperialism into "the openness of folk-plays." Fantastic as this sounds, it is, nevertheless, reality. A reality from which designers, actors, composers and production-managers cannot escape. Such influence through mechanomanic evolution upon architectural design will be more easily understood if one remembers that since the inception of the theater, continuous attempts have been made to mechanize the human form as well as the voice. It is therefore conceivable that not only the human voice might some day be replaced by machines, but also the actor for large-scale spectacles by an **actomaton.** (Gordon Craig's cherished dream.) No opposition from actors who enjoy displaying their face-and-figure-features and no resistance from their producers can prevent this development. And the reason for such an aim is not new. Earlier than the Greeks, earlier than the Chinese, as a matter of fact, savage-culture already strived for the mechanization of the human appearance in voice and figure, because **acting for a large audience** demands enlargement of optic and phonetic expression. Our senses are neither built for transmission nor for reception at long range. Huge masks and figure-enlarging costumes, megaphones, accumulation of single voices into choruses for voluminous sound projection, are almost as old as pre-history. We cannot pride ourselves on being revolutionary. We are simply continuing the **advance of mechanization:** the desire to let machines supply the energy instead of our own for the sake of better perception and projection of messages.

In fact, we have achieved less art than some of the savage tribes. The occidental actor of today imitates nature.

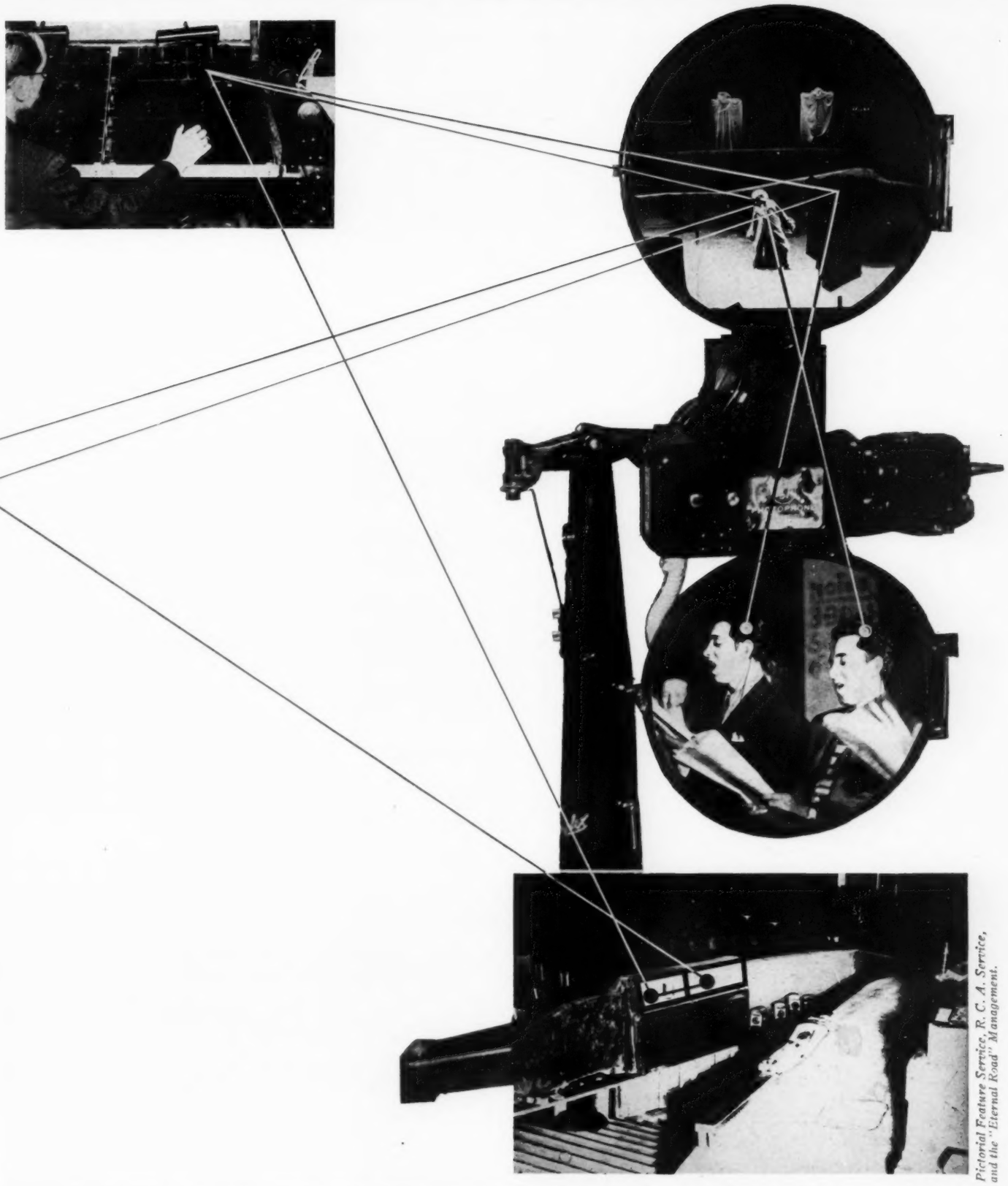
1. *View from stage of Manhattan Opera House into auditorium during remodeling for music-drama "Eternal Road." Side boxes of auditorium are ripped out to make place for new lighting and sound and general control-equipment. Proscenium arch being eliminated, stage extended into the auditorium.* **2.** *Full-size film showing at the left side strip of sound-reproduction.* **3.** *A mechanized and figure-enlarging costume by George Grosz, design* 1923, *for a satire on the German middle-class.* **4.** *Head-enlarging dance mask, Baoulé culture, Ivory Coast, French West Africa.*

He will rouge his lips, cheeks, ears, or wear a false moustache or dress, but he insists on retaining his private identity, while the savage tried to create **another** world: both spiritually and physically—and succeeded, while we are still in the throes of personal exhibitionism.

When the composer and director of this large-scale opera-show* decided to mechanize orchestra and singing, they intruded into the theater-designer's field. Stage and auditorium, especially where they meet, namely, in the proscenium arch, had to be completely changed. Obviously. The conductor with swinging arms had to be eliminated. The range of his baton was too small. His natural capacity for coordination of sound, sight and action was too weak.** He had to be replaced by **"a collective** unit with wide range," embodying more accurate control of design-correlation, which is less temperamental and more factual. A big orchestra was eliminated and only a small unit, assigned by the union, was retained for the "human touch" and for coordination of the various units of mechanized and microphoned music. Also as special accompaniment for individual singers, who

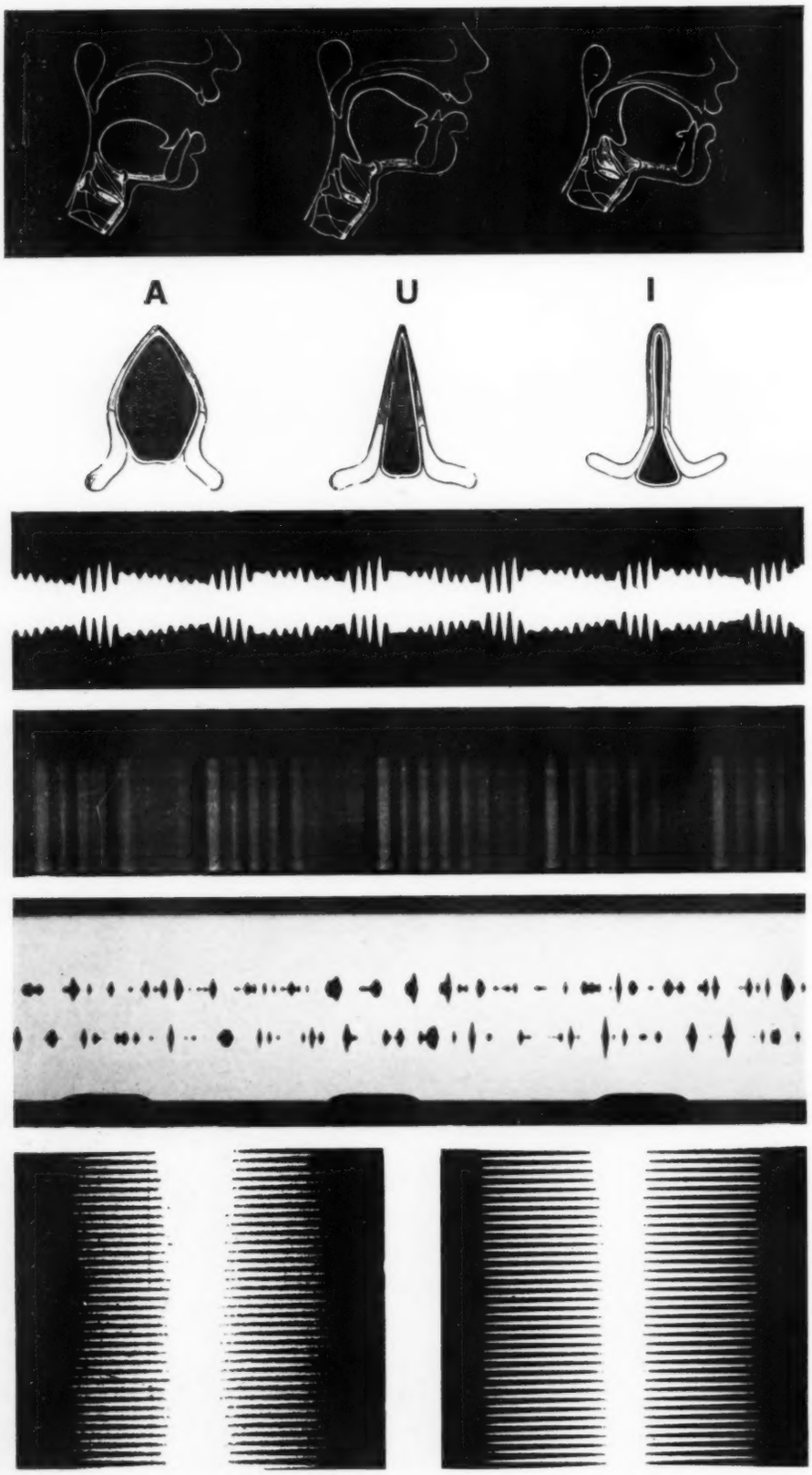
*"The Eternal Road," by F. WERFEL, music by KURT WEILL, settings and costumes by N. BEL GEDDES, plans for reconstruction of the theater by SCACHETTI & SIEGEL.

**From a Statement by the composer, Kurt Weill.
"I had always felt that the physical presence of a large body of musicians between the audience and the stage was very disturbing and detracted from the action taking place on the stage. I felt, that while the music should be an integral part of the production, the physical means for producing it did not necessarily have to intrude itself upon the audience."



Pictorial Feature Service, R. C. A. Service, and the "Eternal Road" Management.

Part view of three scenes of the music-drama (seen at left) emerging from the stage. Costumes are not mechanized although certain enlargements in the appearance of the actors are distinctly attempted; the phonetical mechanization is, however, definitely undertaken. This correlation-chart has been especially condensed to represent only the general idea of such a production rather than the incidental details. The photo-phoned orchestral score, the chorus-chants, parts of individual singing are being supplied chiefly by microphoning and a motion-picture-machine (seen at right) placed on an unseen side-stage. The "old-fashioned" conductor is replaced by a captain (on top) at the sound-control board, stationed in the auditorium at the right corner of the second balcony. He controls the volumes and tempi of the phonetic production. He in turn gets his cues for the mechanical release from one of the two captains (seen at the right corner) located in one of two booths, built-in at the start of the orchestra floor, whose duty it is to signal the coordination of sound and lighting effects. The cueing of actors, however, and of scenery on and off stage is directed by the captain-in-general situated in the adjoining booth. He is also the chief of the whole performance-time. He sits before a small inter-communicating voice-box into which he can speak and listen. This apparatus is connected to similar voice-boxes at more than a score of key spots back-and-front stage. The orders which this voice commands reach the robot-lieutenants, who stand by at their specified electro-stations and they, in turn, convert the magic power of the machines into stage-realism.



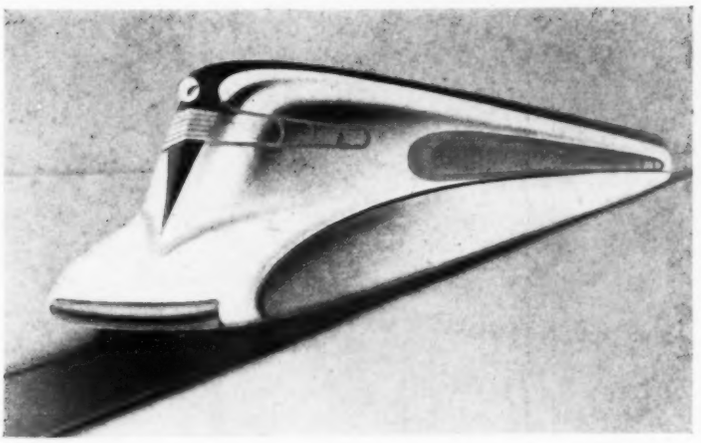
1. *Shape of the oral cavity in the production of the vowel sounds, A, U, I. This is the human-projection-machine for the voice.* 2. *Three laryngoscopic views showing horizontal sections of the glottis and the position of the vocal ligaments and arytenoid cartilages in these three vocal expressions. The power of the lungs feeds this voice-projector of which the vocal ligaments are what the film band is in sound-recording.* 3. *The variable width track, one of the two methods of sound-filming.* 4. *Variable density track, the other method of sound-filming.* 5. *Photomicrograph of ultra-violet push-pull sound track, which is the latest perfection of sound-recording and projection, the clearness of which permitted finally the elimination of the human orchestra.* 6. *Recordings of a single frequency tone showing the difference in clarity of the sound image. The ultra-violet track is a true clear-cut picture of the actual sound of a 9,000 cycle frequency tone. The one at the left, photographed with white light, shows the peaks and valleys blurred and indistinct, which makes for distortions; the one at the right filmed with ultra-violet rays is clear and undistorted.*

still had to be employed. But the big expense and ballast of a large orchestra at every performance was eliminated.*** What did that mean for the architect? The orchestra pit was superfluous. The conductor's place as band leader, superfluous. New spaces for optical plays had to be created, new mechanical devices had to be installed at new strategic points, and the unit captains on control-boards so placed and "built-in" that they could see, but themselves remain invisible. New wiring and their shortest run, enforced fire-protection, installation of sound horns of different frequencies and tonality all over stage and house, and so forth; a correlating system, also mechanically controlled, for coordination of light and sound and action. But the tragedy of it is its economic aspect; namely: that after research has led to re-designing and remodeling of this theater (of an old "normal" type) it will be abandoned because it is unsuitable for a "normal" show, and the financial investment of its sponsors is therefore almost completely lost. Shows that would demand similar equipment are still very rare. The old theater had been changed at immense expense to a newer one, but now, changed, the scheme could, in case of necessity, not be reversed. The investment is permanently lost. **The old as well as the new theater scheme lacked flexibility.** Beneficiaries in this adventure-failure should be the theater designers. Large-scale productions and intimate plays demand inter-convertible theater plans. It will, better than any other scheme, help the economic survival of investor, builder, actor and author.

RCA Photophone Engineers have devoted much time to seeking a solution to find a way of ultra violet-ray recording. They finally found it in ultra-violet light recording. The use of ultra-violet light, which is composed of a very narrow range of wave lengths of light, eliminates all of the distortion and sharpens the image of the high frequencies. This is accomplished by eliminating all out of focus light in the photographing process through the use of sufficiently few wave lengths of light which can be sharply focused in a single plane. The particular frequencies of light thus used do not disperse in the emulsion and are absorbed by the emulsion to such a degree that they do not reach the surface of the film under emulsion, thereby eliminating all reflection. The use, therefore, of ultra-violet light by filtering out all of the white light in the optical system permits the highest quality recording with clean, sharp high frequencies materially increasing the naturalness of the recorded sound.

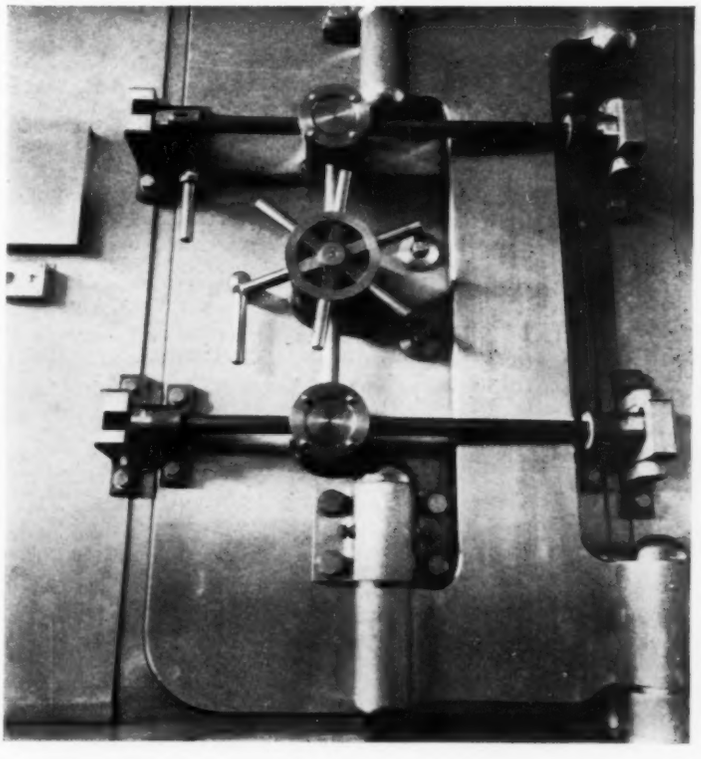
****Speaking of "Music in 1955" the American composer George Antheil says: In Future "... orchestral, solo, and vocal music will no longer first be played and then registered, but will be cut directly into the disk or sound-ribbon. We shall use the sound wave direct . . . If a sound-wave-typewriter is ever invented—and its invention is inevitable—we shall soon be able to type every kind of instrumental and vocal sound instantly into a reproducing record without the medium of an orchestra."*

Reviews of New Books



Above: CURRENT EXAMPLES OF INDUSTRIAL DESIGN — A Streamlined Train (Loewy); Streamlined Electric Iron (Anonymous). A false emphasis on externals (page 43).

Below: VAULT LOCK DESIGNED FOR SAFETY AND ACCURACY OF OPERATION—Without streamlining and without benefit of "Industrial Designer" (page 40).



ART AND THE MACHINE. By Sheldon and Martha Cheney. New York: Whittlesey House, 1936. $3.75.

This book deals with industrial design rather than with the influence of the machine upon the Arts, as its title may suggest. In spite of the author's enthusiasm for the artist's contribution in the machine production of today the reader, at the end of the book, will still be wondering about a few simple but primary questions:

1. Is a turbine a work of art and if so where is the contribution of the artist?
2. Does what the author calls the "new art," "20th century art," have its birth in the production department of a given industry or in the sales department as concerning a merchandising problem to help consumption? The well-illustrated airplane engine on page 17 has a total absence of premeditated "appearance values."
3. If an ice box is a work of art because of "appearance values" then what are the ready-made objects such as screws, crankshafts, springs, etc.?
4. If it is true that "not the industrialist, not the engineer, but the artist brought to the factory" created a "new order of beauty" rather than the machine brought to the artist's studio?
5. If industrial design is itself a form of art or the resulting product? The author often mentions one or the other without distinction.
6. Is art sometimes an "esoteric and precious manifestation" and at other times a "practical expression in utilitarian forms"?
7. Are there no definite limits between a work of art and a mechanical creation as the constructivists believe? If not, then where do they stand, the machinoids (machines without use such as mobiles, immobiles, etc.), the mathematical objects (automatic design), the found objects (God-made design) and the ready made (anonymous engineering design)?
8. Why are physical properties so emphasized (3 chapters on streamlining) and so very little is said on plastics (contribution of chemistry)?

Machine production has separated the old twin functions of handicraft: when the artisan was designing while working, the result was a homogeneous product having the traces of the thought as well as of the tools of its maker. Now the machine executes in a repetitive production and a design is required as a separate function, conditioned by the physical and chemical properties of the materials and the process. The analysis of principles which underlie such a design is left for a book to come.

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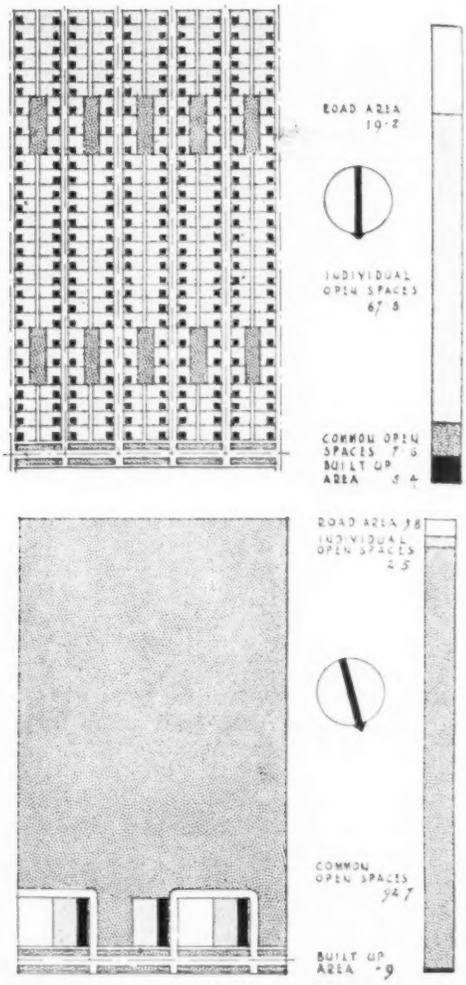
Reviews of New Books



DIAGRAMMATIC PLANS showing the relative percentage areas covered by buildings, roads, private and public spaces in two-story detached houses (above) and in twelve-story flats (below). Page 216.

FLATS, DESIGN AND EQUIPMENT. By H. Ingham Ashworth. London: Sir Isaac Pitman and Son, Ltd., 1936.

This book is the result of the latest experience in England in the planning and construction of multiple dwellings.

Urban and suburban flats serve as a prevention of ribbon development and they simplify the problems of living for elderly people and small families by reducing domestic responsibilities and maintenance expenses.

Exorbitant land values in the near past were the cause of cramped and condensed solutions with little consideration given to the "ethics of good planning and social responsibility." Planning for air, light and sun is the problem of the designer of multiple dwellings of today.

The unit, the minimum flat, its technical equipment and construction details as well as the problem of conversion of old houses into flats, are dealt with in several chapters. Finally, the flat as a solution for slum clearance is emphasized with many illustrations of plans, unit plans and exterior views of English and continental examples. But we would like to see a little more emphasis upon the future importance of multiple dwellings as a possible means by which, through elimination of the old "street-corridors," a freedom of land can be obtained.

(Continued on page 101)

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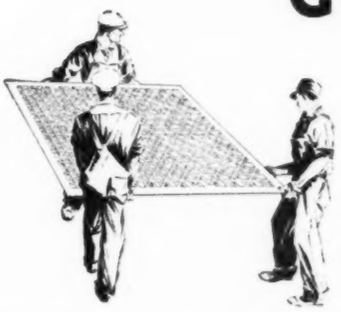

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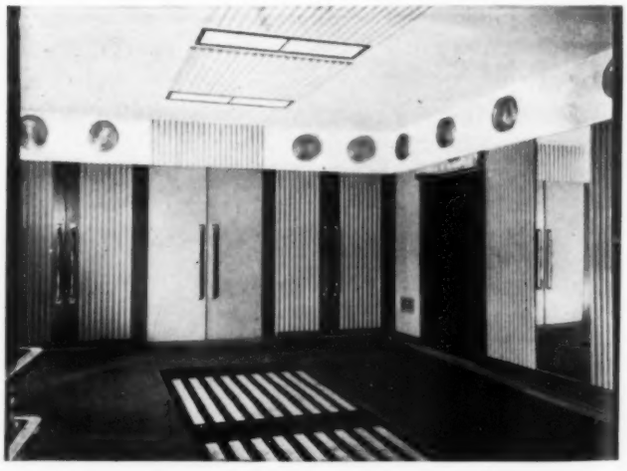

No Door Closers in This Picture

Modern door control goes with modern design in Waukegan's Rialto Theatre (Pereira & Pereira, Architects). These doors are perfectly controlled by LCN closers located in the head jamb, completely concealed, but accessible.

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Reviews of New Books

(Continued from page 98)

1937 DECORATIVE ART, THIRTY-SECOND ANNUAL ISSUE OF THE STUDIO YEAR BOOK. Edited by C. G. Holme. The Studio Publications, Inc.

This book tells us that there is still a decorative art within our homes, imposed upon our everyday life like some sort of etiquette. The following items are examined according to their relationship with decorative art: the exterior of the house, the entrance hall, the living-dining-bed-bath room, also kitchens, earthenware and utensils.

We see in this room by room analysis that we are still classifying our shelters more or less the same way as the Grande Demoiselle and that our contemporary conceptions of space, of interrelation of functions, etc., have little to do in actual terminology; finally that "the best thing in the average room of today is usually its fabrics" and "the chairs of the present-day dining room are always well balanced" (pages 43 and 64).

By limiting ourselves to matters of appearance we make unavoidable the problem of taste which is examined in the chapter "Your taste and mine," and serves as an introduction.

In spite of this picture of contemporary living as it is demonstrated in the pages of this book, in spite of all the superficial mannerisms—we believe that there are still some fundamentals left to us, that life does not lose entirely its interest and that industry supplies us with commodities which the decorative handicraft was offering to our forefathers. Otherwise we will have to agree with the "Future historians who, looking at this volume, will deduce that we have a persistent need for slight stimulants and narcotics, by the number of cocktail cabinets and cigarette boxes" (page 43).

THE SMALL CHURCH: HOW TO BUILD AND FURNISH IT, WITH SOME ACCOUNT OF THE IMPROVEMENT OF EXISTING BUILDINGS. By F. R. Webber, author of **Church Symbolism.** J. H. Jansen, Cleveland, Ohio, 1937. $3.50.

The small church discussed here by Mr. Webber in the light of his own studies and work as a church architect is one seating from 50 to 400 persons and designed for liturgical forms of worship—mainly Roman Catholic, Anglican and Lutheran. Mr. Webber advocates leaving out nonessentials, if necessary, in order to obtain the best in design, construction and craftsmanship, and points out what the irreducible essentials are in the small church. He also insists that the altar and other chancel fittings be designed by the architect to insure harmony of scale, design and materials. Twenty chapters of factual information, drawn from personal experience and observation, and illustrated with 217 photographs and drawings are made accessible through a general index.

The chapter headings are: 1. The Purpose of the Church; 2. Site and Orientation; 3. Atmosphere; 4. The Ground Plan; 5. The Structural System; 6. Vertical Treatment; 7. Proportion and Scale; 8. The Chancel; 9. The Altar; 10. Other Chancel Fittings; 11. Exterior Treatment; 12. Church Towers; 13. Roofs and Ceilings; 14. Windows; 15. Church Seating; 16. Bells and Clocks; 17. Church Organs; 18. Some Useful Dimensions; 19. A Select Library; 20. Directory of Artists and Craftsmen.

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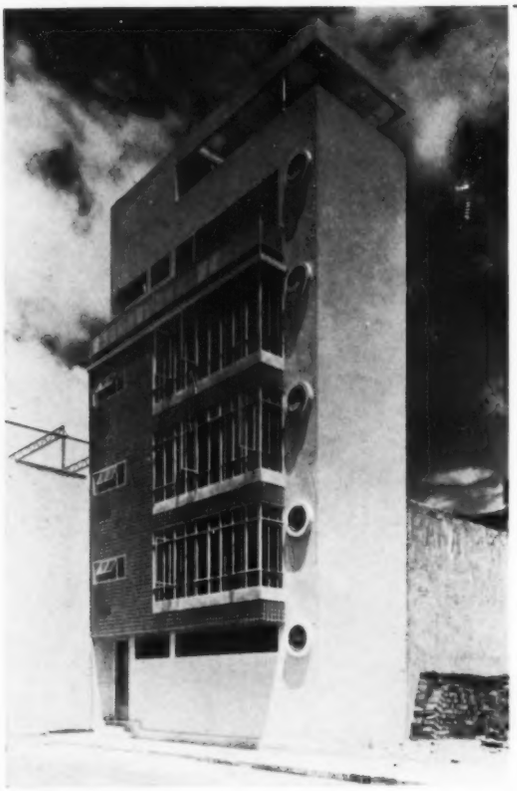

The New Architecture in MEXICO

Modern architecture, painting and sculpture in Mexico, collected and arranged with photographs, by Esther Born.

Mexico, the land of mañana and siestas, has suddenly waked up and found itself in the midst of a wave of modern construction, a new kind of revolution, carrying with it a renaissance of the creative talent of the Aztecs and the Spanish Americans.

The new architecture in Mexico includes outstanding examples in practically every important class of building—office buildings, store groups, factories, hospitals, schools, apartments, workers' houses, town and country houses. In their own setting, the new structures with their straight lines and unornamented flat surfaces present a dramatic contrast with neighboring buildings heavily ornamented in the Spanish Colonial tradition; yet the new architecture has been perfectly acclimated to its background.

This new volume is a reference source for building designers everywhere, and contains a complete assemblage of the progressive thought of architects and engineers below the Rio Grande.

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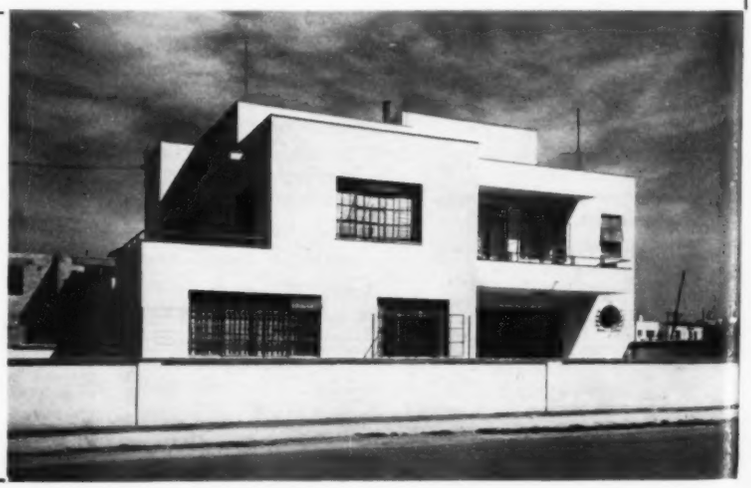

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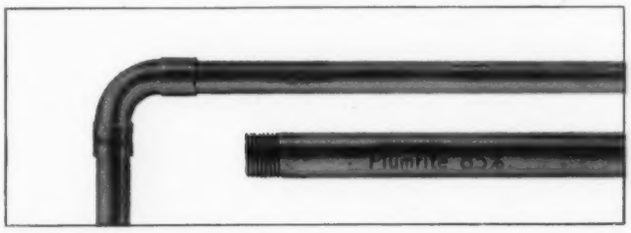

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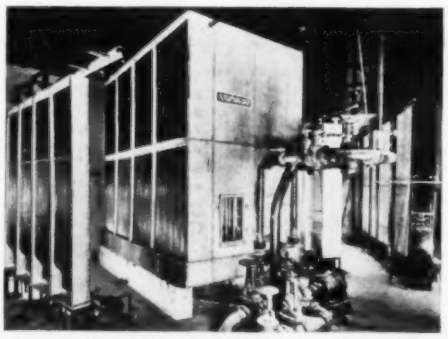

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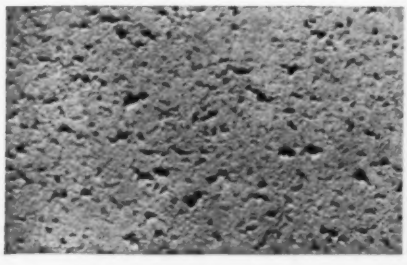

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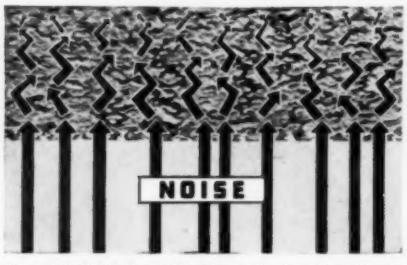

3. ABSORBS NOISE AS A SPONGE ABSORBS WATER—THEN DISSIPATES IT

4. PERMANENT—COSTS LESS TO MAINTAIN CLEANABLE, PAINTABLE

5. HIGH LIGHT-REFLECTION CUTS COST OF LIGHTING

FOR quieting hospitals, restaurants, schools, offices—for nearly every sound-absorption purpose, consider the unusual efficiency of Acoustone, USG *fireproof* acoustical tile.

Acoustone is quickly applied to new or old construction. It absorbs and dissipates noise-energy within its millions of interconnected cells—as indicated in diagram at left. Acoustone provides a dignified, quiet atmosphere and adds to the beauty of any interior.

When efficiency and maintenance are considered, Acoustone is proved the lowest cost acoustical material. Acoustone is permanent. It has rich integral color—needs no further decorating. Acoustone's beauty may be kept fresh indefinitely by simple vacuum cleaning—*at a small fraction of the cost of painting.* If color changes are desired, Acoustone may be painted, *positively* without affecting its sound-absorbing ability.

Acoustone's attractive surface has the appearance of travertine. It is free of monotonous perforations—dead spots—that absorb needed light. Instead, Acoustone provides unusually high light-reflection which may be increased, if desired, by painting.

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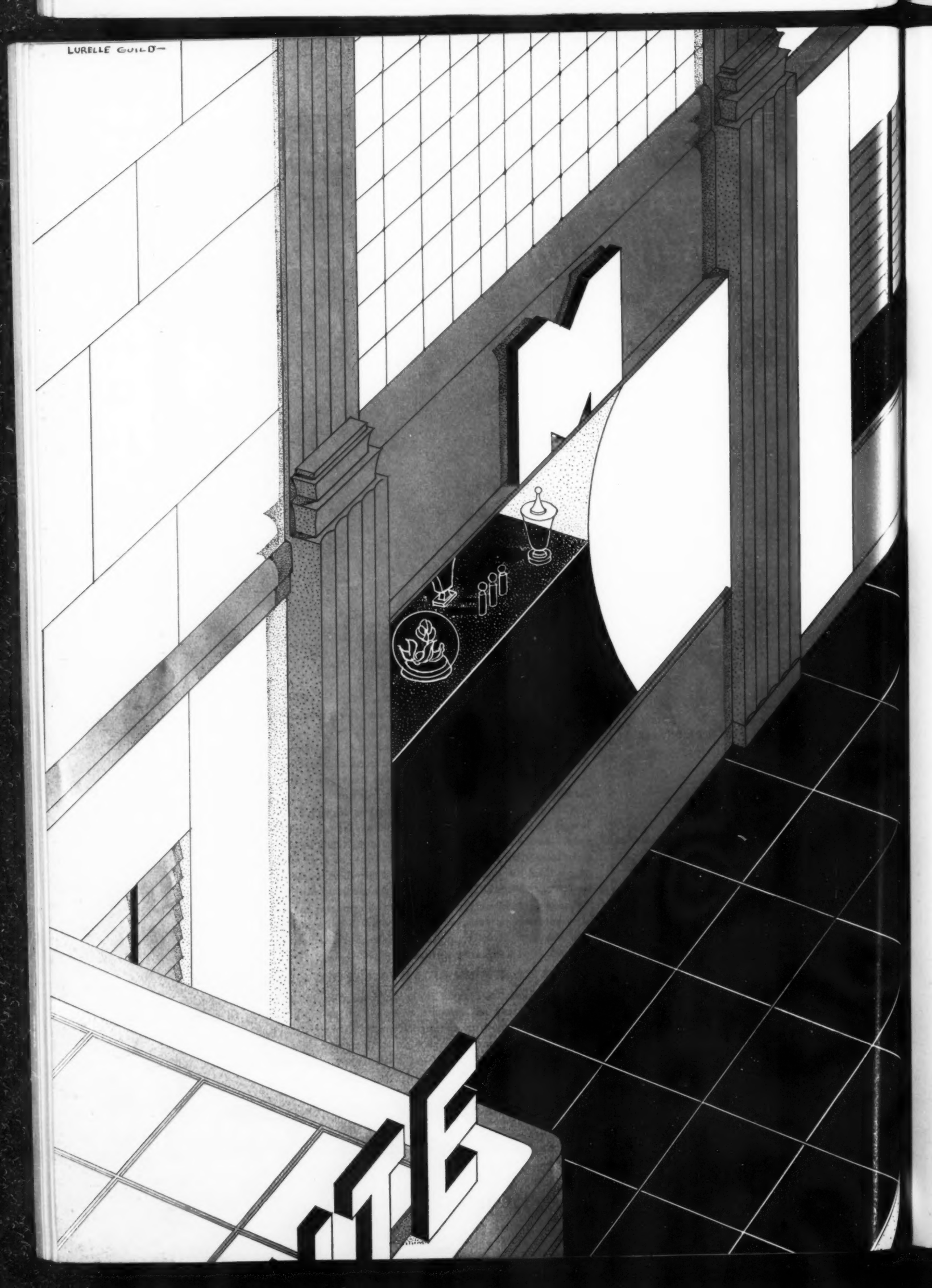
LURELLE GUILD

BEST FOOT FORWARD •

It is not a new discovery that the commercial facade attracts more business with Beauty ★ Not new either, but becoming more widely realized, is the discovery that the exceptional versatility of Alcoa Aluminum and the glory of its lustrous surface offer unlimited scope to the designer ★ Especially to him who seeks to embody elegance without extravagance ★ Practical things to remember are that Alcoa Aluminum is available in the form of sheets, shapes, and castings; that special extrusions are economical answers to individuality; that standard extrusions may be ingeniously used for achieving interesting detail; that the Alumilite† finish heightens Aluminum's natural resistance to corrosion; that ease of fabrication promises appropriately economical finished cost; that our experienced engineers are available for consultation.

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Here are the facts on corrosion-resistance of sheets

FOUR different types of irons and steels are in general use for "sheet iron" building requirements: ordinary or open-hearth steel; pure or open-hearth iron; copper-bearing open-hearth iron; copper-bearing open-hearth steel.

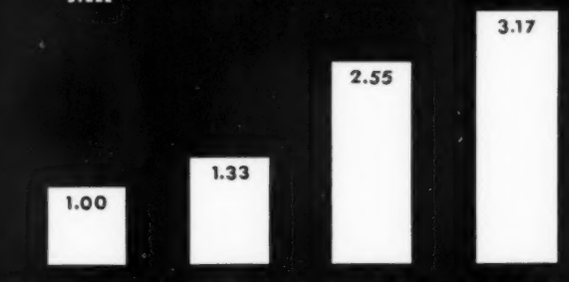
Beginning some twenty years ago, the American Society for Testing Materials started exposure tests on these materials to determine their relative life in atmosphere. These tests deserve careful study.

Other factors than corrosion resistance are, of course, important. First cost . . . ductility . . . tightness of zinc coating in galvanized sheets . . . appearance, all are considerations.

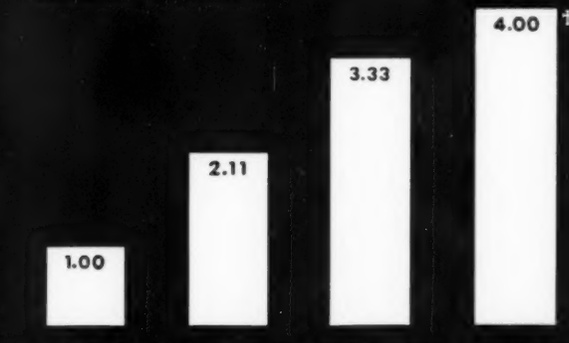
In all such qualities, Beth-Cu-Loy, Bethlehem's copper-bearing steel, ranks with the best. It costs only 4½ to 5 per cent more than ordinary steel—considerably less than open-hearth or copper-bearing iron. Sheets of Beth-Cu-Loy are easy to form; their coating stands up well under shop forming; their appearance is bright and evenly spangled.

BETHLEHEM STEEL COMPANY, *General Offices:* Bethlehem, Pa. *District Offices:* Albany, Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Dallas, Detroit, Hartford, Honolulu, Houston, Indianapolis, Johnstown, Pa., Kansas City, Mo., Los Angeles, Milwaukee, Nashville, New York, Philadelphia, Pittsburgh, Portland, Ore., St. Louis, St. Paul, Salt Lake City, San Antonio, San Francisco, Savannah, Seattle, Syracuse, Toledo, Tulsa, Washington, Wilkes-Barre, York. *Export Distributor:* Bethlehem Steel Export Corporation, New York.

Results of tests conducted by American Society for Testing Materials on atmospheric corrosion of black 22-gage steel and iron sheets—comparison of average life, index numbers based on life of ordinary steel as 1.00:



PITTSBURGH TEST: Conducted for 75 months. (Proceedings of A.S.T.M.—Committee A-5, Volume 23.)



FORT SHERIDAN TEST: Conducted for 132 months. (Proceedings of A.S.T.M.—Committee A-5, Volume 28.)

†Interpolated, since while all other sheets failed, only 10 of the 61 copper-bearing steel sheets had failed by the end of the test.

ANNAPOLIS TEST: Still under observation after 228 months. (Proceedings of A.S.T.M.—Committee A-5, Volume 36.)

*Based on first failure, since many sheets have not yet failed. All ordinary steel sheets have already failed; all but 4 open-hearth iron sheets; 18 of the 37 copper-bearing iron sheets are finished—and there is still not a single failure among the 77 copper-bearing steel sheets even after 19 years.

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BUILDING TYPES

COMMUNITY RECREATION

Because recreation is not a static thing, but a growing and changing function, standardization in structures and facilities is not desirable, states George D. Butler.

The medicine ball has replaced the medicine man. See The Architecture of Leisure, by Oscar Fisher.

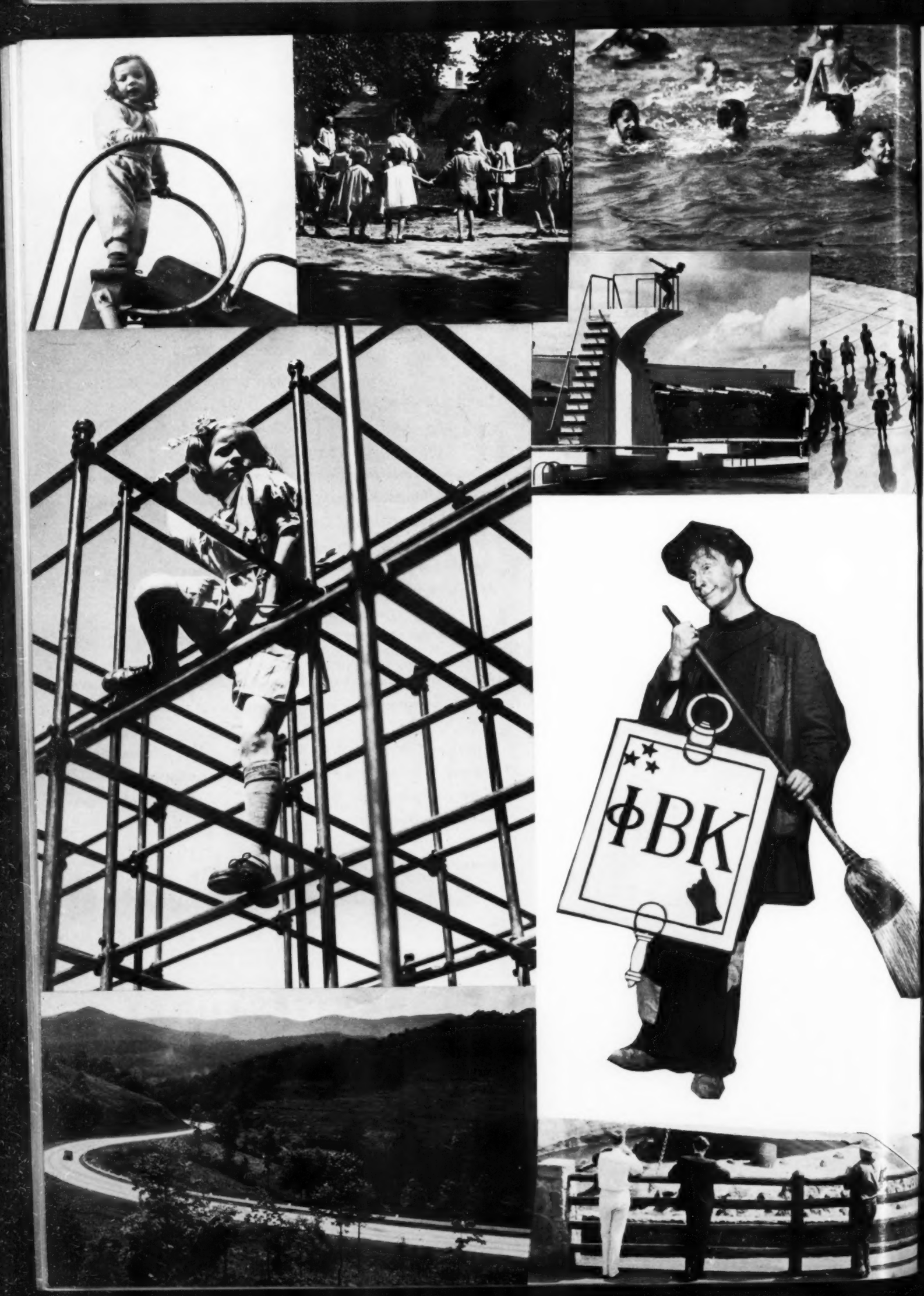
Le Corbusier proposes a new module for recreation.

A complete check list of types and equipment emerges from a study of community requirements.

Miscellany: Bibliography. Badminton and tennis buildings. Recreation Centers (a new building type?). Cabins. Amphitheater. Yacht Club. Band Shells. Zoos. Five pages of detailed drawings of plans and equipment. . . .

Surfacing for play areas, and its advantges.

ARCHITECTURAL *Record*


ΦBK

Planning For Recreation

By **GEORGE D. BUTLER**

ONE OF THE outstanding phenomena of the past decade has been the tremendous increase in the amount of leisure, much of it enforced, which has come to a large portion of the people in the United States. The frequent consideration which this problem of leisure has received in the press during the last few years has indicated the growing awareness of its extent and significance. One of the most important problems which is facing America today is how this free time may be so utilized as to contribute to the enrichment of our people rather than become a liability or even a menace. Studies of the ways in which people use their leisure reveal a variety of occupations and activities, but recreation comprises the major use to which it is being put.

Recreation in one form or another has always had some part in the life of our people. Only since the beginning of the century, however, have municipalities begun to consider seriously their responsibility for providing opportunities for recreation. A number of cities have for years conducted well balanced, city-wide recreation programs. Other cities have utilized their school centers for community recreation. In a great many communities, however, there has been little preparation for the wise or satisfying recreational use of this new leisure. One of the most challenging problems which is now facing American cities is how they can best provide the facilities and leadership which are essential in order to meet the growing public demand for recreation.

Two phases of this problem are worth careful consideration. Experience has indicated that unless people have had an opportunity to develop skill, interest or a taste of the enjoyment which comes from active participation in varied recreational activities, the mere provision of opportunities to engage in them is likely to meet with only a limited response. The tremendous popularity of many of the passive forms of commercial amusements is due in large measure to the fact that people have received little preparation for active participation in other forms of recreation. Therefore, in order to secure the fullest benefit from leisure hours and to justify an increasing investment in public recreation areas and facilities, our people must be given early training which will prepare them for successful and creative use of their leisure time. This is primarily a problem for the schools and one which for many years education leaders have been urging as one of the school's most important functions.

This phase of the problem is of special significance to the architect because its success is largely dependent upon the provision of suitable facilities in the school plant. A well-designed gymnasium is essential to a well-balanced program of games and athletics during the winter months in most parts of the country. Playrooms are required for the games and play activities of the children in the lower grades. An auditorium with a stage equipped for the production of plays is needed for dramatics, music, assemblies, and other events. A well-rounded program of nature study requires a nature room or museum as well as opportunities for observing nature outside the school building. Swimming pool, shower and locker rooms, library, clubrooms, workshops and special outdoor features including the athletic field stadium all make their

***GEORGE D. BUTLER** of the National Recreation Association, is author of "Planning for Recreation." Mr. Butler, a Yale '16 man, has been with the National Recreation Association since 1919. Author of "Play Areas, Their Design and Equipment," "Playgrounds—Their Administration and Operation," "Parks — A Manual of Municipal and County Parks" and other special reports. For a number of years he was editor of the "Recreation Year Book." An energetic worker, Mr. Butler has directed three important national surveys; in 1931, a survey of municipal and county parks for the U. S. Department of Labor; another of the "Leisure Time Activities of 5,000 People" for the National Recreation Association. Recently he directed a national survey of Municipal recreation areas for the National Park Service, which is to be published shortly.*

Photo montage on the opposite page: Girl on the jungle gym, by Ewing Galloway: Clown from the "Living Newspaper," WPA production.

own special contribution. No school system meets the requirements of today for educational, social and cultural development except as these facilities and their varied uses are provided in the school plant. Equally important, of course, are outdoor playgrounds and playfields designed and equipped to make possible a wide range of constructive play activities.

Another major aspect of the problem of recreation in modern life relates to the provision of recreational opportunities for young people and adults. As the school systems train great numbers of boys and and girls in varied recreational skill it is imperative that opportunity should not cease as soon as school days are over. Unless much of the benefit from these valuable school experiences is to be permanently lost, definite provision must be made whereby our young people can continue to engage in athletics, music, drama, social and creative activities after leaving school. To provide this opportunity, organization, leadership, facilities and funds are required. No single agency is today equipped to shoulder the responsibility for meeting the entire problem. Increasingly, however, cities are seriously studying how they may work out a more satisfactory plan for providing this new type of public service.

Many years ago the park was considered primarily as a place where city dwellers could obtain the recreation derived from "the peaceful enjoyment of its rural, sylvan and natural scenery and character." Increasingly, however, the function of the municipal park has been to provide opportunities for people to engage in wholesome forms of recreational activity in an attractive environment. Recent studies have shown that the most marked expansion in park areas has been in types such as golf courses, athletic fields, swimming centers and other areas used primarily for active recreation.

The rapid expansion of municipal park and recreation systems is also indicated by the fact that the total acreage has increased approximately 50% in the last decade. Because of the rapid expansion in properties, the growing demand for recreation facilities and the suitability of park projects as a means of employing emergency labor, park and recreation departments have perhaps gained more impetus during the depression than any other branch of the municipal government.

Local Study Essential

The extent to which the provision of recreational facilities, areas and structures will result in maximum service and satisfaction to the communities in which they are established is largely dependent upon two factors. In the first place the investment is likely to be justified only if these facilities are constructed after a careful study of local community needs and if they are wisely and intelligently planned for the specific uses which they are intended to serve. The recent rapid and the inevitable future expansion of park areas and facilities present a definite challenge to the architect and engineer who are called upon to guide their development. A knowledge of local resources, interests, needs and conditions is essential to sound planning. Furthermore, the advice of recreation leaders who are especially familiar with the peculiar problems involved in the operation of these facilities should be sought. The plans as finally adopted should represent the best combined thinking of the technical planner and the recreational administrator. Experience has indicated that misguided planning and development in the recreation field has discouraged rather than stimulated the expansion of additional facilities and services.

The other factor which plays an important part in meeting the problem is the extent to which competent, well trained and experienced leaders are employed for the operation and administration of the recreation plant. Maximum returns in public appreciation, utilization and enjoyment of the facilities are likely to result only when cities recognize the important function of capable recreation leadership. All who are concerned with the designing and construction of such facilities are in a strategic position to help in the extension and guidance of the movement by urging the necessity of employing adequately well trained personnel for the operation of the features which are being developed for community use.

Planning for Multiple Use

Because recreation is not a static thing but is a growing and changing function, standardization in structures and facilities is not desirable. There is great opportunity for the use of ingenuity in developing new features and in making possible their multiple use. For example, in some cities golf clubhouses are so designed that they may be used especially throughout the winter months as centers for a variety of indoor activities and also as warming centers for persons using the golf courses for skiing, tobogganing and other winter sports. For example, the Olympic Swimming Stadium in Los Angeles was so constructed as to make possible the use of rooms for training institutes, classes and other group activities. Bathhouses are increasingly designed and equipped that they may be used during the winter months as indoor gymnasiums or playrooms. Outdoor swimming pools are no longer used only two or three months in the year. Some of the recently constructed pools in New York City, for example, are laid out and equipped for many games such as basketball, volley ball, paddle tennis, shuffleboard and so forth during the months when the pool is not used for swimming. In localities where natural outdoor skating areas are few, consideration might well be given to the construction of swimming pools in such a way that they may be safely utilized for skating during the winter months.

One of the most marked tendencies in the last few years in the whole recreation movement has been the acquisition and development of park areas outside the city limits either by municipal, county, state or federal authorities. With the extension of the five-day working week and the marked improvement in highway construction, people have a much greater opportunity than ever before to get away from their homes for longer periods of recreation. Important as are the neighborhood areas where they may engage in play activity day by day, these areas cannot afford the opportunities which are so greatly desired by large numbers of people and which can be afforded only by large outlying parks. Among these very popular activities are fishing, boating, swimming, camping, hiking, nature study, picnicking and winter sports and these are the activities which are most commonly carried on in the out-of-the-city parks. The contribution which these outlying areas make to the people of our crowded cities in the form of healthful, enjoyable outdoor recreation in close contact with nature is unquestioned, and we may look for a further extension of this type of recreational opportunity in the years ahead.

Any comprehensive survey of recreation today would require a consideration of the valuable services which are being rendered by a variety of municipal and private agencies

such as park and recreation boards, school authorities, welfare departments, settlements, young people's organizations, churches, industries, housing authorities and others. All of these are making a contribution to the enrichment of living through the recreational opportunities which they afford. Successful community planning involves cooperative action on the part of all of these agencies. Special mention should be made, however of the important part which our public schools play in this entire program.

As was previously noted, school authorities have developed a great variety of facilities for use in connection with their extra-curricular and special interest programs. The question is being asked today why these school facilities should not be made available for the use of community groups. In a number of cities school plants are recognized for the use of the entire community and they are being utilized during nonschool hours for a variety of recreational activities either under school or other auspices. With the growing demand for recreation facilities for youth and adults as well as for children it is difficult to believe that communities will not insist that school facilities be made available to the fullest possible extent for the use of all in the community.

Community use of the school plant is a factor of primary interest and concern to the architect, because successful use of school property by young people and adults outside of regular school hours is often dependent to a considerable degree upon the arrangement of such facilities as the gymnasium, auditorium, swimming pool, clubrooms, workshops and so forth. Unfortunately many school plants are being constructed today without these facilities or with little, if any, consideration of their possible community use. Even in cities where such use is not encouraged by school authorities at the present time, the possibility that in the future certain types of facilities in the school plant will be utilized by community groups makes it imperative that architects, when designing school buildings, should give careful consideration to the problems involved in such use. Their vision and effectiveness in presenting this problem to local school boards who may not be fully aware of its significance will result in greater public appreciation and use of the school plant and a future saving in school costs.

There is perhaps no other type of planning which is more satisfying than planning for recreation, because if it is done wisely and well it will result in opportunities for joyous, creative and satisfying living. If those who are concerned with the planning and development of facilities which serve the recreational interests of the people are able to meet the challenge which increased leisure presents, they will contribute effectively to the future welfare of the American people.

Photos by F. S. Lincoln

The Architecture of Leisure

By OSCAR FISHER

FROM A NATION OF SPECTATORS, AMERICA HAS BECOME A NATION OF PARTICIPANTS. RECREATION HAS BECOME CONSTRUCTIVE RELAXATION, TRULY RE-CREATIVE AND FUNDAMENTALLY ACTIVE. This is a vital element in a nation that has been termed "pleasure loving." The medicine ball has replaced the medicine man. The extent of change which this makes necessary in the types and quantity of facilities has only begun to be envisioned. The day is not far distant when it will be unthinkable to build housing, single family or multiple, without ample provisions for recreational activity.

To trace the growth of provisions for recreation is to trace the emergence of great masses of people from long hours of toil at back-breaking labor tasks. The close of the World War was the signal for the release of an inhibited demand for profitable use of leisure time which has continued to gain momentum. It received further impetus by the movement of large numbers of people from rural to urban ways of life.

Recreation facilities for the urban dweller are what concern us mainly, for the country dweller is more adequately supplied by nature and tradition. In the city, however, the slightest effort by the individual toward satisfying his need for recreation creates an immediate need for the planner's mind and the laborer's hand. The slightest change in the urban dweller's whims often impels the erection of new facilities and the scrapping of old. It is this somewhat frenzied character of the demand that has given to the architecture of such facilities their ephemeral, temporary quality.

Predictions of a diminishing need for other type structures are based upon the expectancy of stabilized population in the near future. The need for facilities for recreation, however, is expected to continue to expand due to the trend toward metropolitan life for more and more of our people.[1]

These are the contributing factors which make planning for recreational use one of the brighest stars on the architectural horizon. HERE IS A FIELD OF ACTIVITY AT HAND FOR THE ARCHITECT WHICH WILL REACH INTO ALL CLASSES OF SOCIETY—A FIELD IN WHICH HE MAY TAKE A LEADING PART IN RESHAPING ONE OF THE MOST IMPORTANT ASPECTS OF URBAN LIFE, WINNING FOR ARCHITECTURE THE KIND OF UNIVERSAL APPRECIATION AND UNDERSTANDING WHICH MEDICINE, FOR EXAMPLE, HAS WON FOR ITSELF. To take a part in this opportunity requires an appreciation of the history and growth of recreational activity, its special requirements and its probable future.

Growth and Changing Types

Predominantly rural America was adequately supplied with recreation by the annual county fair and the visiting chautauqua. Provisions for leisure time activity have undergone a rapid growth and a fundamental change since that time. The canvas tents of the county fair have evolved into the concrete and glass structures of today. The field of recreation is estimated to represent a ten billion dollar a year industry absorbing one-sixth of our national income.[2]

The first public playground was opened in Brookline, Mass., in 1872. In 1935, 2,204 cities were maintaining 35,480 playgrounds and recreation centers. The first motion picture theater was built 35 years ago. By 1930 there were 22,731 theaters with a seating capacity of 11,300,000,[3] sufficient for every man, woman and child to attend once every week and a half. The automobile has made remote parks and beaches easily accessible. Complete cities have been built and have flourished by virtue of their provisions for recreation alone.

The growth of recreation has been accompanied by a basic change in the types of activity and facilities. Recreation, as exemplified by the "street of the vanishing nickle" with its peep shows, shooting galleries, etc., is being displaced by more wholesome active and cultural types. Swimming pools, tennis courts, gymnasiums and playgrounds have replaced the dreary sand-lot and innocuous peep shows.

A constantly increasing demand and its recognized stability has been a factor in changing both the type of facility and the quality of its construction. Papier-mâché Coney Islands are no longer in vogue. In their place we have the new accent upon wholesome types of activity, provided for by structures built of permanent materials, expressed by ample unfettered design.

It is a characteristic of active types of recreation that they are organic in their growth. Where crowds go to swim, more crowds will be attracted. Cities that formerly had no swimming pools, after providing one, find themselves with a public clamoring for more. Every new facility breeds a need for another. Camping, swimming, golfing, hiking, playfields, recreation centers, etc., have sprung to the forefront in American life. The ingenuity of architects is being taxed and new solutions are in the plans.

Estimates of Need

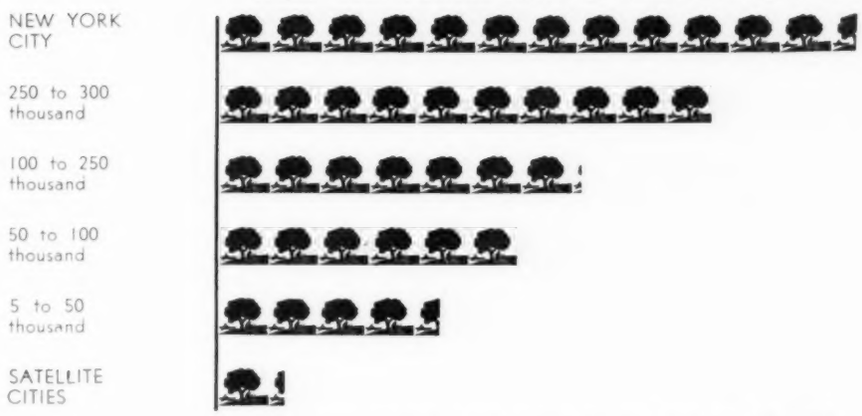
Despite phenomenal growth, experts estimate that present provisions are

far short of requirements. The effective demand for the newer type facility is still greater than we have been able to supply. The inadequacy of existing facilities reaches out into all classes, all localities and all types.

Minimum standards in recreation are rising continually. Those cities which have provided amply are being repaid through reduced delinquency, crime, accident and health costs.[4] The larger cities, for the most part, have faced the problem and are attempting to provide solutions. Smaller cities, however, have generally neglected to keep pace with this growing need for recreational facilities.

Park acreage and recreational facilities in urban areas are only 43 per cent of an adequate minimum according to latest estimates by the National Resources Committee. The National Recreation Association calculates the adequacy of Children's Playgrounds at 38 per cent, of Neighborhood Playfields and athletic fields at 32 per cent, and of Indoor Recreation Centers at 44 per cent. The national, state and local parks, reservations and privately-owned recreational areas now include approximately 21 million acres. In its report to the President the National Resources Board recommended that the area of land for recreational use be increased to 84 million acres.[5]

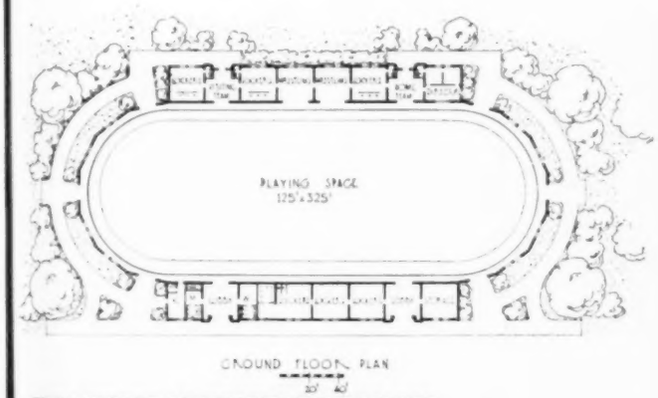
PERCENTAGE OF DEVELOPED AREAS DEVOTED TO PARKS AND PLAYGROUNDS IN VARIOUS SIZE CITIES



Compiled from "Urban Land Uses," by Harland Bartholomew

Design Determinants

Two factors are becoming important determinants of plan and design. First, the necessity for economy in leadership and maintenance staffs. Second, the stress upon participant rather than spectator types.

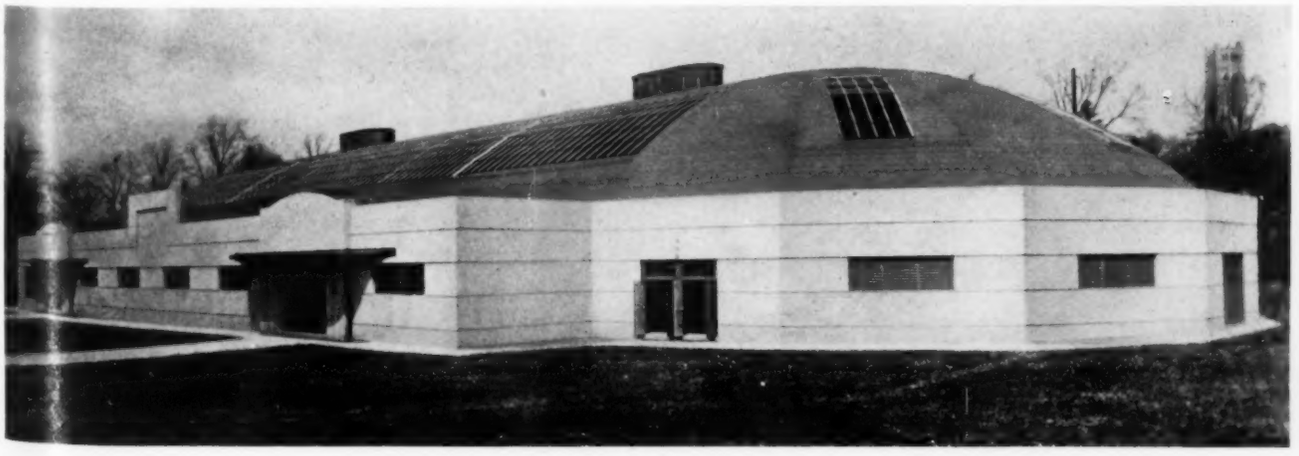


FIELD HOUSE AT SWARTMORE COLLEGE
An example of multiple-use planning. Plan above and exterior view below.

Courtesy The American School and University

Photo courtesy "The Concrete Way"

YEAR - ROUND SWIMMING POOL at Haarlem, Holland



Fortunately both factors influence design similarly. Solution of the first necessitates planning for multiple use of facilities. This makes duplicate use of leadership and maintenance staffs possible. The second factor, which reduces the space allotment necessary for spectators, makes multiple-use planning more practicable.

All-year-round and maximum hours-per-day utilization should be one of the most important considerations in planning for recreation. This phase has only recently begun to receive attention. Further research and analysis are required to establish criteria and desirable combinations.

One of the best examples of this kind of planning is that of the Field House at Swarthmore College, Walter T. Karcher and Livingston Smith, architects; Robert E. Lamb, designer. The Field House has been planned for use at all hours of the day and evening. Rapid changes can be made in the variety of uses to which it may be put. It is in a portion of the campus that is to be developed into a group of playing fields. In planning the fields, no accommodations are arranged for spectators.

The Field House is equipped with removable bleachers so that the entire space may be utilized for activities. A patented archroof which spans 125 feet provides for greatest space efficiency with a 41-foot clear ceiling height at the center.[6] A small or large theater may be created with the movable bleachers. The range of activities which may be carried on without interference include basketball, tennis, badminton, volleyball, wrestling, football, soccer, lacrosse, baseball, track and field sports; a pit filled with peat moss is provided for broad jump, high jump, and pole vault. Individual rooms along the sides of the main playing area provide for apparatus work, parallel bar, wall-racks, chest weights, punching bags, sandbags and horizontal bars. The entire building is convertible in part or all.

The new covered swimming pool at Haarlem, Holland, is an excellent example of designing for year-round use. In the winter time it is an indoor swimming pool. It is a square-flat-roofed building walled to half its height with glass on three sides; the fourth side is an expanse of double-paned glass windows reaching from floor to ceiling. Four of the six bays can slide open at the touch of an electric switch. In summer the pool is thus opened on a wide terrace which overlooks a small park. Desirable year-round-use is provided for in this manner.

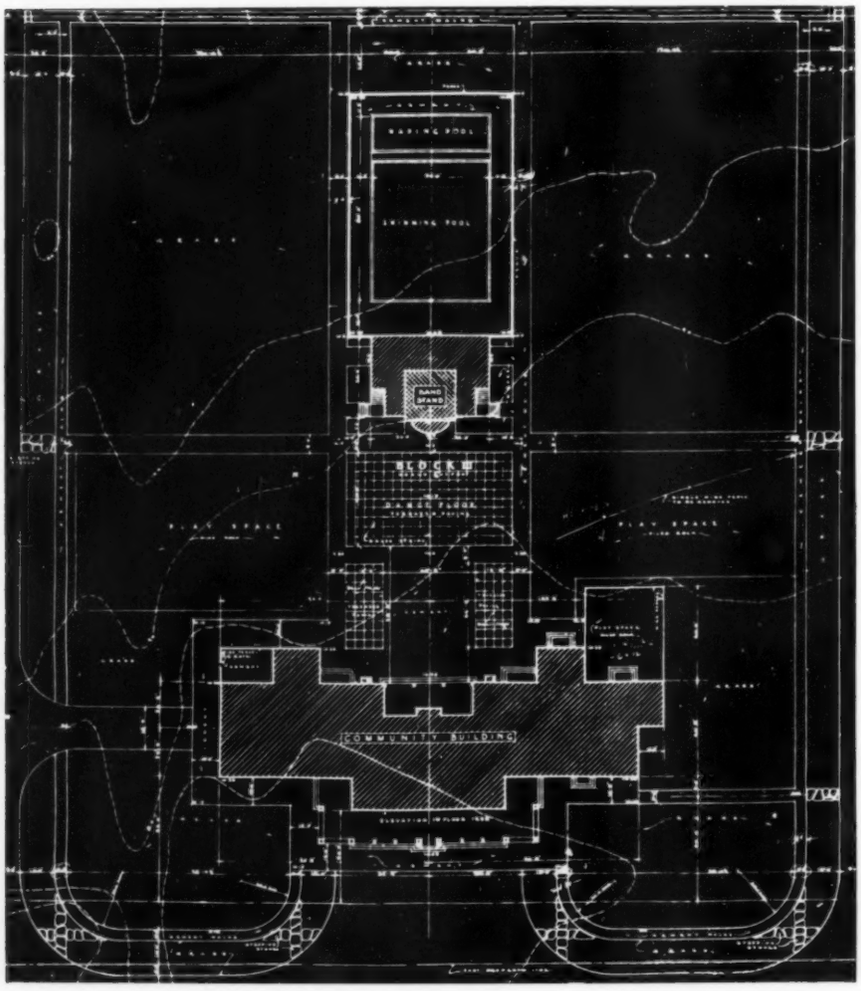
These two examples, which illustrate (a) multiple-use and (b) continuous-use indicate the need for intensive study for improved planning standards.

Providing for Recreation in Subdivisions

Selling houses in monotonous grid-iron subdivisions is becoming difficult. Provision of park space and facilities for community recreation have become essentials in desirable developments. People are unwilling to invest in homes situated in neighborhoods which lack these provisions for desirable living.

Subdivisions planned with an integrated street system can provide park areas by the savings affected in street area. At the same time a more efficient plan results, at a lower cost. One subdivision recently enabled buyers of homes to borrow money at ½ per cent lower interest because of its desirable plan which insured a stable investment. A reduction of ½ per cent interest may amount to an equivalent of 10% in rent or carrying costs.[7]

Ten per cent of the area in a subdivision may be economically devoted to park and recreation use.



RECREATION IN A PWA HOUSING DEVELOPMENT, Miami, Florida. One block in the six-block development is devoted to this use.

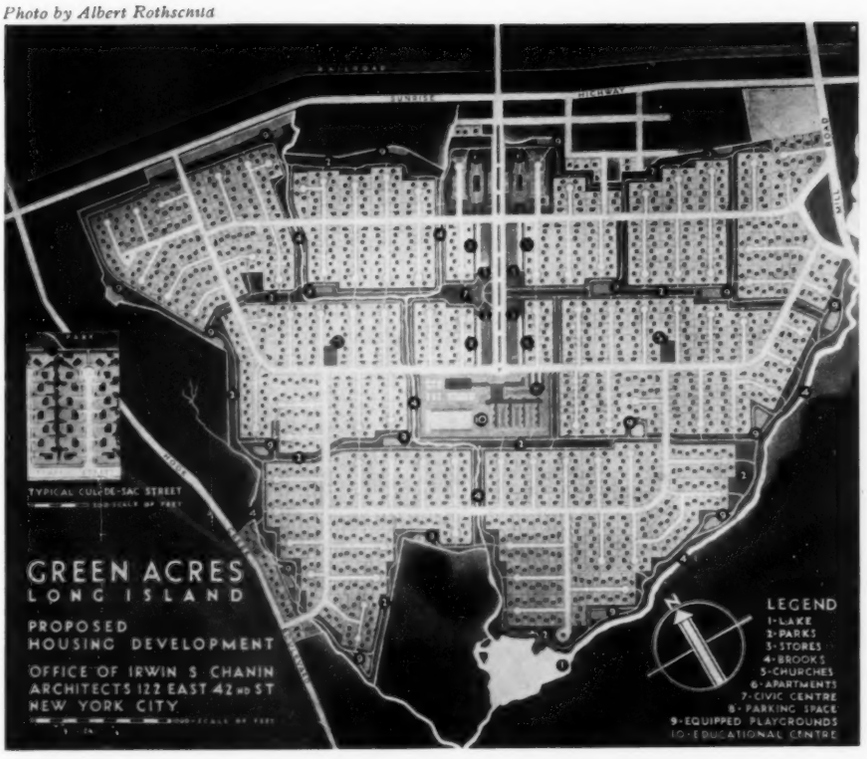
Waterfront Areas

With only a few exceptions, the waterfronts in most of our cities are shambles when compared with many cities in Europe and South America. Neglect of waterfront land, water polution and toleration of nuisance structures are common phenomena everywhere. People travel long distances to partake of the beauty and spaciousness afforded only by the wide horizons of waterfront land. For that reason they present one of the greatest opportunities for improvement in recreation today.

The best example of waterfront improvement in America is offered by Chicago, Illinois, which resulted from Daniel Burnham's city planning efforts. Chicago's lake-front was transformed from an industrial and residential slum into an excellent park and recreation area. Encouraged by the improvement, the city's best residential area has been established facing the park.

Water polution caused by sewage and factory waste has been the most important deterrent to private and public development of waterfront recreation. Recent activity by municipalities and the Federal government is aimed at eliminating this nuisance.[8] With this program accomplished we can look forward to greatly expanded use of waterfronts for recreation.

Photo by Albert Rothschild



GREEN ACRES, LONG ISLAND, NEW YORK. An example of the newer type subdivision which provides for park and recreation areas, a street plan designed for safety and an insured community environment.

Parks Pay for Themselves

Parks and playgrounds add value to land used for residential purposes by providing insured open space and recreation facilities. City planners have found that parks increase the value of surrounding property to such an extent that the increased tax revenue is more than sufficient to pay for their acquisition and development.

[9]The famous Michigan Avenue improvement in Chicago which cost 16 million dollars has added one hundred million dollars to property values. Land about Central Park, Manhattan, increased in value 800 per cent between 1858 and 1873 as against 100 per cent average increase for land in other parts of the city. Land values near parks in Essex county, New Jersey, increased 600 per cent between 1905 and 1916 whereas other nearby property increased only 100 per cent. The increase in value of affected land was five times the cost of the parks.

[10]Land values within 500 feet of the Bronx River Parkway, Westchester County, New York, increased from 600 to 1,100 per cent on a general average of 800 per cent during the ten years since the Commission purchased the land for the parkway. The increase in tax receipts from land within the zone of influence of the parkway amounted to $22,895,377 over what they would have been had there been no parkway built. In twenty-two years, from 1910 to 1932, this actual increase in receipts attributable to the parkway had exceeded by $84,347 the net cost of the parkway itself.

It has been alleged that playgrounds depreciate the value of adjacent property. This has been proved incorrect by a study of 9 playgrounds in Manhattan and Brooklyn[11]. Over varying periods of years between 1904 and 1926, land bordering on these playgrounds increased in value 763 per cent. At the same time other land in the two Boroughs showed an increase of 27 per cent in Manhattan and 55-57 per cent in Brooklyn.

As the population increases, the effect of parks upon property values increases, and a larger percentage of parks can be afforded. According to Charles Herrick,[12] who has developed a formula based on experience records, the following standard is economically feasible. Assuming a garden city standard of 6 families to the acre in residential areas, 29 per cent of the area of such a town could be profitably devoted to parks. This would be equal to one acre of park to every 75 inhabitants, a standard far more liberal than any of the standards so far proposed.

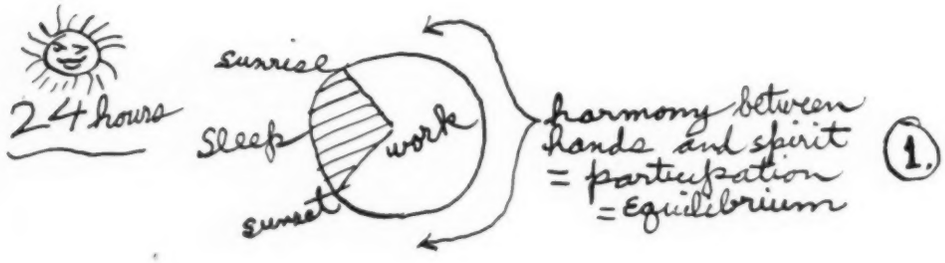
Parks and playgrounds serve as breathing spaces for the city's residential areas. Parks also serve to stabilize such areas, as their borders are not favorable to business use. Where they are needed most, in densely populated areas, they will affect value most. Where they are less urgently required, in sparsely settled areas, they will affect values least. In both they serve as buffers to inharmonious uses and preserve residential environment.

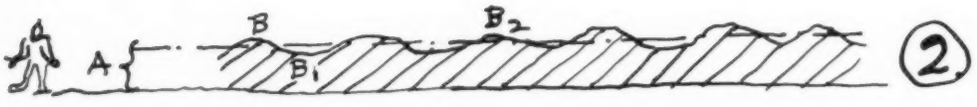
[1]See W. S. Thompson. Population Problems.
[2]Americans at Play. J. T. Steiner.
[3]Motion Picture Daily Year Book.
[4]Adventures in Recreation. W. C. Pangburn.
[5]National Resources Board Report. December 1934.
[6]Arch-Roof Construction Co.
[7]Green Acres, Long Island.
[8]Water Resources Committee, National Resources Committee.
[9]Regional Plan Association of New York.
[10]Westchester County, N. Y., Park Commission.
[11]Regional Plan Assn. of New York.
[12]American City Magazine.

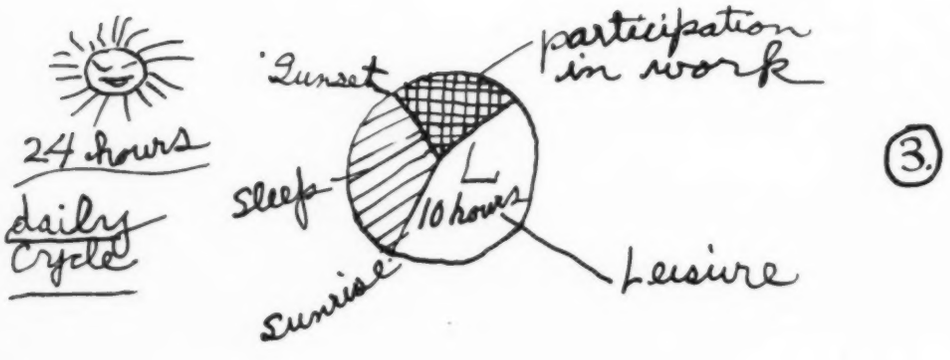
The Module—A Statement

At the time of handicrafts, during the premachine civilization, the solar day of 24 hours ran smoothly in an uninterrupted succession from cause to effect. The hands and the spirit worked together in perfect harmony, because the hands were fashioning at the instigation of the spirit; raw material was transformed into finished product by the uninterrupted initiative of the artisan. The difficulties, the handicaps and the successes followed each other in a continuous chain. In short, existence was stimulated. The man was **participating** and this word in itself represents the essential elements of balance and moral satisfaction.

From sunrise to sunset the hours passed smoothly. In addition, the father often worked together with his sons. The work was related to the family, and its **quality** was one of the reasons for existing.







This disc represents the 24-hour solar day in the period of handicrafts; the time between two periods of sleep is a unit, 1.

If, on the other hand, zone "A" expresses the normal quantum of necessary and sufficient interest which to man is his reason for existing (the feeling of being active, responsible, creative, participating), the undulations B, B_1, B_2, etc., show that in spite of differences in individuals the real quantum stays close to the normal, 2.

The Machine Age

The machine makes machines; the job is taken away from the hands and given to the machine to be **executed.** An arbitrary hierarchy is established: starting with the chief, the technicians and inventors on top and going down to the foreman, to the skilled worker and unskilled labor. For those on the apex of the pyramid, the spiritual interest is sharp, far above the average; for the others, the interest falls so low that it practically disappears; there is indifference, there is no feeling of participation, there is but depression, therefore discouragement, boredom and demoralization.

Certain jobs were not as hard hit by mechanization; but others—most of industry—create around them a sea of boredom.

On the disc of the 24-hour solar day of the future machine civilization, a sector unknown up to the present time will appear, it is the large sector representing the **recreation** of the machine age, 3.

Today, because of inefficient transportation, the movie and the saloon, the solar cycle is used badly rather than well.

What will be the pleasures of the future? They are destined to constitute the **real day** of the modern man, an **eminently productive day,** on a **human plane,** physical and spiritual; culture of the body (physical recuperation), culture of the spirit, expression of initiative (handicraft without commercial reward), sport (absorption of competitive spirit) and family. The section will be completed thusly.

It is when leisure time will be organized and planned that the completely productive day of the **real man** will appear:

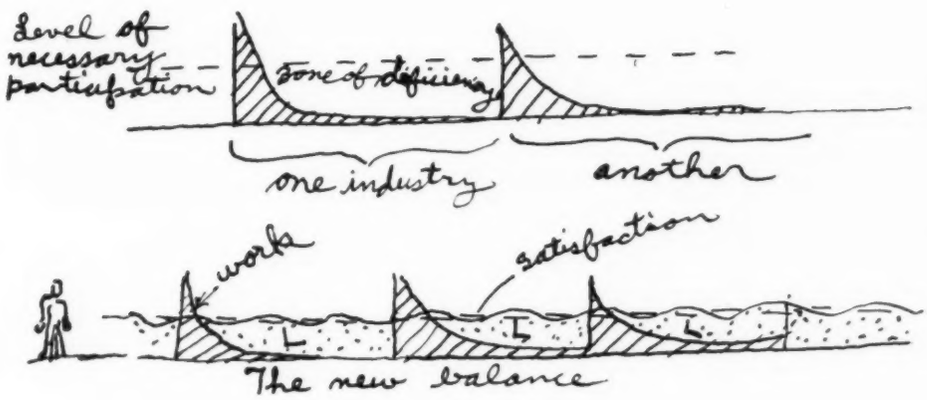
by Le Corbusier

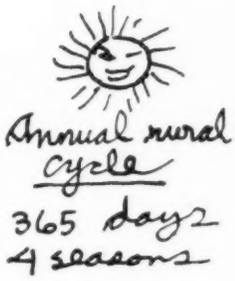
1. Participation in work.
2. Care of the body.
3. Spiritual culture.
4. Family.
5. Sleep.

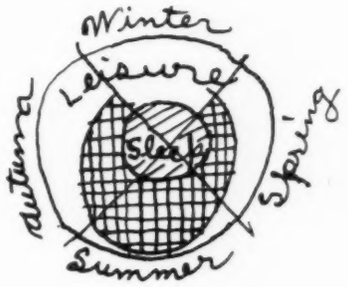
This outlines the work to be undertaken by the authorities; it concerns the management of cities (architecture and city planning). This concerns industry which is regulated by the solar day of 24 hours.

Rural economy is regulated by the solar year of 365 days with four seasons. Rural life and industrial life are fundamentally different.

In the day's order in rural life there is (as there always has been) an admirable balance between work and spirit. Leisure time is entirely different than in industrial life. Instead of the clock, the calendar rules. According to the season, the rural day is busy or free. When the farmer is busy he is in the category of the handicraft artisan. It is in his seasons of leisure that he requires organization and planning as well as the industrial worker.







THE NEW YORK TIMES, SU

VALUE OF LEISURE TO MAN IS DOUBTED

Added Time Would Be Used for Fun Not Self-Improvement, Psychologist Finds

THREE CLASSES STUDIED

Salesmen Found Most Devoted to Play, Factory Hands Next, Professional Men Least

Those "moralists" who argue that increasing man's leisure would enable him to devote more time to improving himself and the human race err greatly, according to Dr. Edward L. Thorndike, psychologist at Teachers College, Columbia University.

Instead, the psychologist declared in a report made public yesterday, human beings who already devote more than half their leisure to self-entertainment would probably utilize any increase for amusement, instead of to the pursuit of "wisdom" and "truth."

Dr. Th[illegible] who

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DR. THORNDIKE found that—"the professional group spent the least average percentage of its leisure time for pure entertainment, devoting 50.7 per cent of its free hours to that end, compared with 59.8 per cent for the sales class and 57.2 per cent for the factory group." Thus supporting Le Corbusier's analysis made without benefit of surveys.

Requirements for Communities

SATISFACTORY STANDARDS for community recreation are difficult to establish in the abstract for any size city. Too many important factors vary for any given size and between various sizes. Minimum standards are, all too often, applied mechanically and become inflexible maximum standards.

The qualifying factors are many and should be weighed in connection with any general list of standards. These factors influence the type, size and location of facilities. Some of these are:

Population density. Congested areas need more open space and facilities.

Characteristics of the people. Sizes of families, traditions, habits of recreation.

Natural advantages. Proximity to waterfront, woodlands, countryside.

City plan. The location of open spaces and facilities for recreation are an important influence in determining the direction and rate of city growth. They can also be a determining factor in types of surrounding land use.

Climatic conditions. Regional differences affect the stress on active or inactive types and the amount required.

Topography. Affects the availability of certain type areas and may enforce substitution for other types.

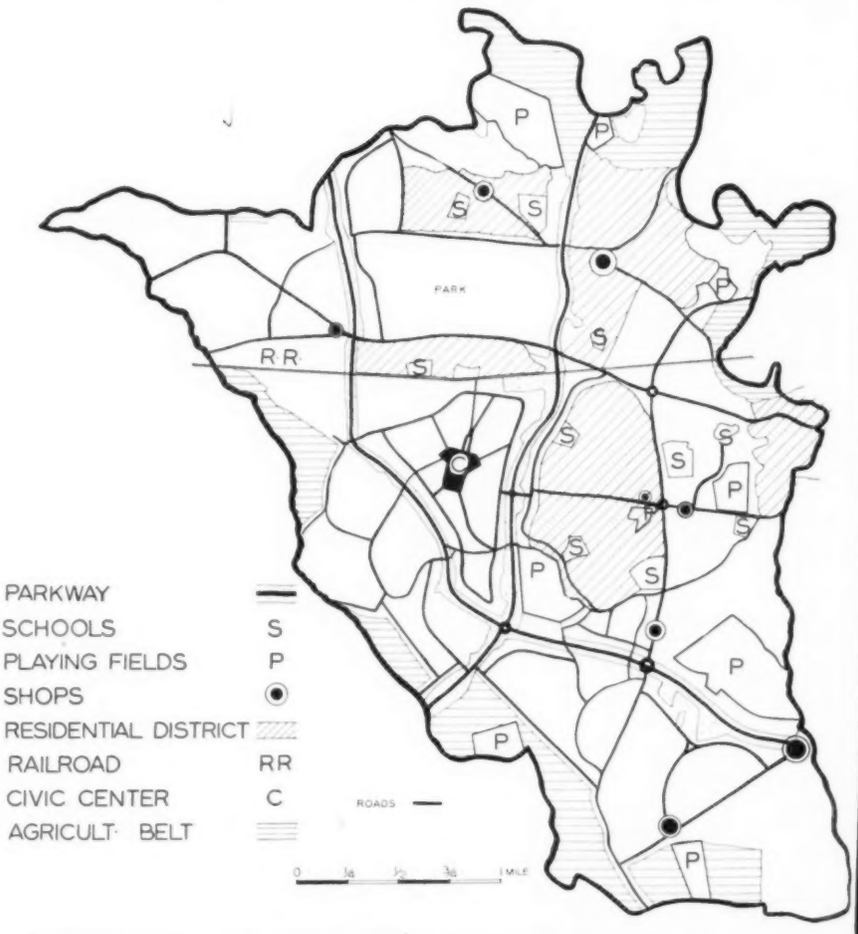
Economic status. Affects type and requirements.

The type of city. Predominant type of work, whether it is heavy industry, light manufacturing, commercial, seasonal, the length of working day and many other factors decidedly affect the proper standards for recreation in any city. To achieve a desirable standard any given community will require intelligent planning on a city-wide or even regional basis.

Standard for Cities—Types of Areas

There is general agreement with reference to total space requirements and types of areas that should be provided.

Acreage. Subject to local variations. There should be at least *one acre of park* and recreation space *for each* 100 *of the city's population.* This is a practicable minimum which several cities have already surpassed.



WYTHENSHAWE, MANCHESTER, ENGLAND, A TOWN FOR 100,000. A permanent agricultural belt of 1,000 acres. Scattered open spaces comprise another 1,000 acres. A total open space of 1 acre to 50 people. Space for outdoor recreation including a 100-acre golf course. The park contains 250 acres. Two parkways with an average right-of-way of 300 feet. Sites are reserved for a civic center, schools, churches, shopping and industry. The shopping districts are placed at the juncture of four "neighborhood units."

Preschool Playfields

Small areas for children of preschool age. Especially required in congested areas. The demand for this type may be expected to expand greatly in the near future, as it already has in England where it is operated in connection with nurseries.

Size and Number: 5,000 to 10,000 square feet. One to each 1,000 population.

Location: In all residential areas except those predominated by older or transient population. Children should not be required to cross a street to reach playfields. Sometimes desirable to combine with a neighborhood or children's playground.

Plan: Should be surrounded with a low fence or hedge and shade trees or other shelter. Central grass plot and concrete walk separating apparatus area from grass plot.

Equipment: One or more sand boxes with movable covers; block-building platforms adjoining the sand boxes; sand tools; large building blocks; small slide; playhouses; several chair swings; a few low seesaws; low drinking fountain; benches and tables for quiet games for mothers, nurses and older sisters; shelter for baby carriages and from sudden rains; flagpole; bird bath; play materials. If the sand box is not under a tree a trellis should be erected over it and vines planted along the trellis.

Children's Playgrounds

For children between the ages of five and fifteen; the common type of playground which, however, has changed in size, layout and equipment.

Size and Number: From three to seven acres. At least sufficient to provide one acre for each 1,000 population.

Location: At least one for each square mile of residential area. More in congested areas. Children of primary school age should not be required to walk more than ¼ mile-½ mile in heavy traffic neighborhoods. Desirable to adjoin the elementary school site, and away from heavy traffic, noise and smoke.

Plan: Among the usual features are: apparatus area; open space for games of younger children; wading pool; sheltered area for handcraft and quiet games; informal outdoor theater or story-telling corner; shelter house (unless the school building provides needed facilities); special areas for games and sports such as playground baseball diamonds, volley ball, basketball, paddle tennis, handball and horseshoe courts; straightaway running track, jumping pits and probably one or two tennis courts. In some neighborhoods a special section for children of preschool age will be provided. The various areas should be separated by paths, hedges or fences where necessary. The entire area should, as a rule, be fenced and a planting strip provided outside the fence. Shade trees should also be provided around the borders and especially in the play lot.

Neighborhood Playfields

For young people and adults. May be combined with the children's playground.

Size and Number: 10 to 20 acres. The size should be governed by the population density. One acre should be provided for each 1,000 population.

Location: One in each square mile of residential area. Desirable to locate at or near the junior or senior high school site.

Plan: Not more than three acres will usually be developed for a children's playground for the immediate neighborhood A major part of the area will be devoted to fields for games and sports such as baseball, football, soccer, softball, field hockey; also for handball, volley ball, tennis, croquet and other courts. Other features may be a bowling green, archery court, outdoor theater. A special section should be provided for the exclusive use of older girls and women. Usually there is a quarter-mile running track and essential facilities for track and field events. The area may also provide one or more outdoor fireplaces and benches and tables for neighborhood picnics. Unless bathing facilities are provided elsewhere in the neighborhood served by the area, an outdoor swimming pool may be essential.

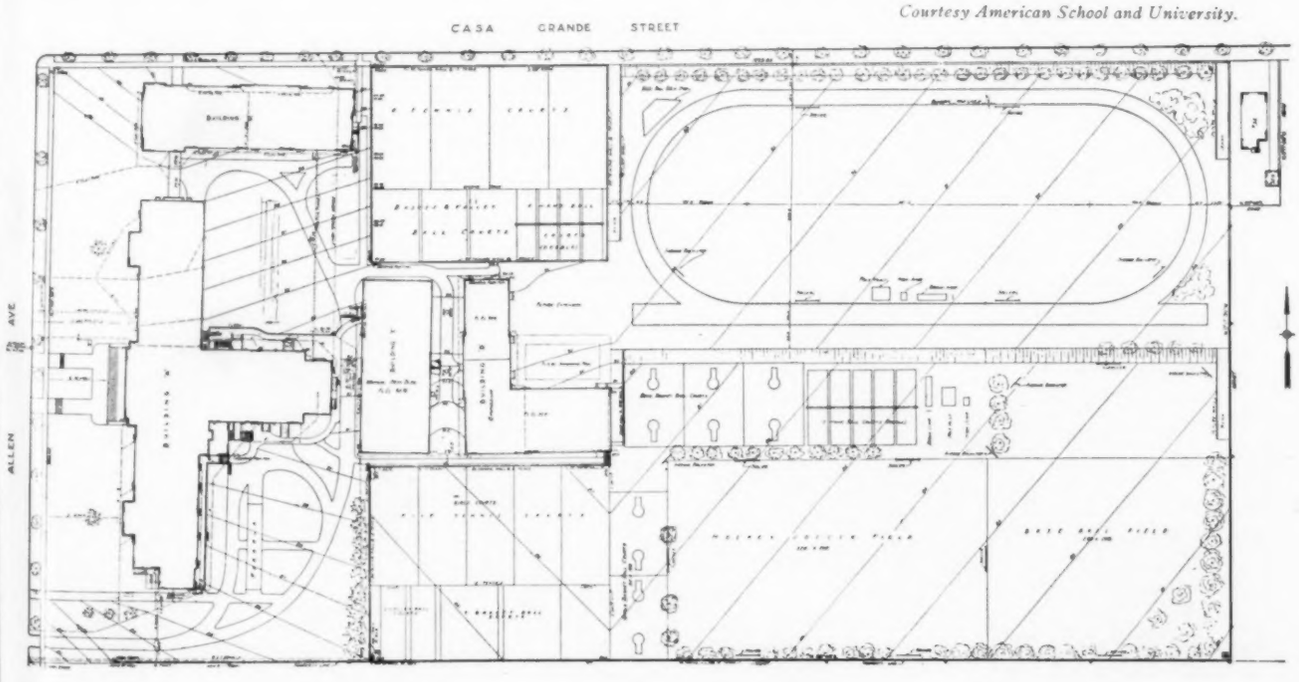
Unless the school building provides suitable facilities there should be a field house with sanitary facilities, lockers, dressing and shower rooms; also a place for the storage of equipment, and the director's office. Frequently the building also contains recreation rooms such as a gymnasium, clubrooms, craft rooms or an auditorium for social, dramatic and other events. If the area contains a swimming pool the building will also serve as a bathhouse and provide the needed facilities.

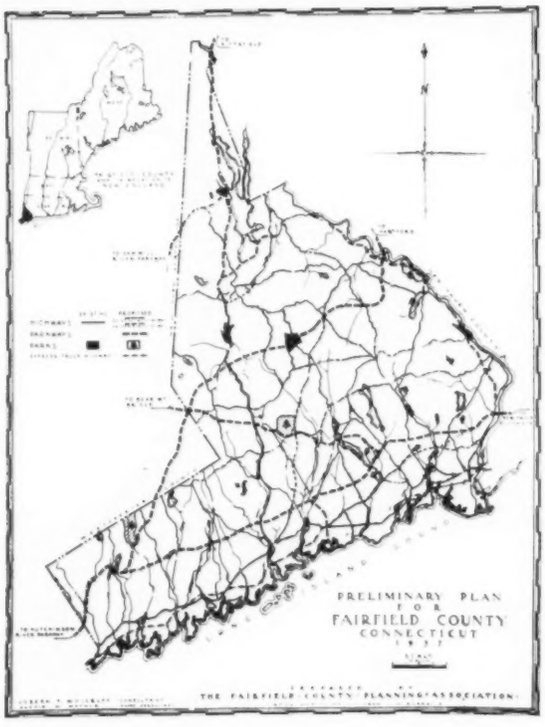
The entire area should be attractively landscaped and as much should be in turf as is practicable. If possible, one or more small groves of trees should be in the area which should, especially through border plantings, present an attractive park-like appearance.

Equipment: The same types of equipment are needed as for the children's playground, although frequently a greater amount will be required to take care not only of the people in the immediate vicinity but the larger numbers who come from further afield. Additional types of outdoor and indoor equipment will be needed for the building, swimming pool and the special game supplies. As a rule, movable bleachers are preferable for this type of area to permanent seating facilities.

A NEIGHBORHOOD PLAYFIELD connected with a Junior High School in Pasadena, California. Segregation of related activities and maximum use of the area are typical of Pasadena.

Courtesy American School and University.





Large Parks and Parkways

Providing a retreat from the noise and rush of city traffic and a pleasant environment for engaging in recreational activities.

Size and Number: 100 acres and upward for the parks. The parkways may vary in width. Not less than one acre for each 400 population.

Location and Plan: Modern practice in city planning calls for the linking together of the city park system by means of parkways. It is considered best practice to make these "Freeways." A freeway is a parkway to which abutting properties have no right of access, light or air. An integrated system of intown and greenbelt parks surrounding the city with connecting green wedges is the ideal. Parts should be devoted to various types of woodland, open lawn, meadow and valley. A minimum of roads, as many water areas as possible, paths for walkers, bridle trails, and parking space which should be provided near the entrance.

Activities and Facilities: Boating, swimming, skating, skiing, tobogganning, zoological garden, botanical garden, nature trail, shelters, comfort stations, outdoor theater, picnicking, games and sports of various types, restaurant, benches, shelters and comfort stations at strategic points. In addition, the equipment used in playgrounds may be included near the borders of the park.

Special Recreation Areas

Other type areas gaining favor in many cities. Although these facilities are sometimes included in the areas listed above, most often they are found in special areas.

Golf Courses

Most golf courses are on areas especially provided for this purpose. Land of uneven topography with some woodland is best.

Size and Number: At least 40 or 50 acres are required for a nine-hole course and not less than one hundred acres for an eighteen-hole course. At least one 9-hole course for each 27,000 population or one 18-hole course for each 54,000 population.

Location and Plan: Not required to be close to residential areas. Acquiring land for golf courses which pay for their upkeep is looked upon as an excellent method for cities to provide for future park areas.

Activities and Facilities: Besides the playing course, a clubhouse is needed. Sometimes tennis courts, bowling and putting greens and other game courts are provided near the clubhouse. The course is often used for winter sports.

Water Areas

Access to natural areas and creation of artificial lakes and swimming pools for scenic beauty, boating and swimming. These have become the most popular types of area for recreation.

Size and Number: As the standards for these areas vary considerably for each city they cannot be established in the abstract. The total area required will be greatly dependent upon the natural character of the city's location. There should be outdoor swimming facilities adequate to serve one tenth of the population per day. There should be 100 square feet of beach for each bather present at one time. When separate swimming pools, one acre suffices for small pools and several acres for larger pools where parking space should be provided.

Location and Plan: The location and plan will also vary with the natural terrain. Sometimes part of larger recreation areas, swimming pools may be separate but are frequently included in playgrounds or playfields.

Activities and Facilities: In addition to the swimming area a bathhouse is required, playground apparatus and game courts, life saving and sports equipment, diving boards, floats. The use of swimming pools for skating in the winter time has been much debated. The practicability will depend upon the type of construction employed. There is danger of cracking caused by expansion and damage to the water supply and drainage systems through freezing.

Athletic Fields

Intended primarily for highly organized games or sports.

Size: An area smaller than five acres is unsatisfactory, often as large as twenty acres.

Location and Plan: Sometimes part of a high school site or neighborhood playfield. In large stadiums extensive parking areas are required.

Activities and Facilities: A quarter-mile running track in which are laid out a football or soccer field, a baseball diamond and facilities for field events. Unless locker, shower and toilet rooms are provided under the stadium a special field house is required. Space for maintenance equipment and supplies is essential.

Camping and Picnicking Grounds

To afford facilities for camping and Sunday outings for city groups of either boys, girls, adults or family groups.

Size: A minimum desirable site is twenty acres. Some occupy sites of several hundred acres.

Location and Plan: As a rule on land a considerable distance from the city. Should have a body of water suitable for swimming.

Activities and Facilities: Facilities for camping, cabins, dining room, recreation hall, nature museums, service buildings, boathouse, bathhouse.

Other Areas

Additional areas, often provided in those above, and their desirable minimums are:

Baseball Diamonds: At least one to each six thousand population.

Tennis Courts: Not less than one for each two thousand population.

Indoor Centers: Containing gymnasium, auditorium, swimming, arts and crafts, music, drama and other groups. One for each twenty thousand population.

Miscellaneous: For softball, quoits, horseshoe pitching, badminton, winter sports, volley ball, etc.

CHECK LIST OF STRUCTURES

Museum (Art, Nature, Science)
Arboretums
Aquariums
Botanical Gardens
Zoos
Amphitheaters
Shelters
Clubhouses
Swimming Pools
Bathhouses
Boathouses
Recreation Centers
Pavilions
Craft Shops
Stables
Lodges
Camp Buildings
Planetariums
Administration
Comfort Stations
Theaters (Indoor, Outdoor)
Bandstands
Wading Pools

CHECK LIST OF FACILITIES

Athletic Fields
Archery Courts
B.B. Diamonds (Hand)
B.B. Diamonds (Soft)
Basketball Courts
Bathing Beaches
Bathhouses
Bocci Courts
Bowling Greens
Bridle Paths
Coasting Hills
Concert Areas
Country Pools
Cricket Fields
Croquet Courts
Curling Rinks
Dance Areas
Diving Pools
Farm Plots
Field Houses
Flagpoles
Floodlights
Football Fields
Football Soccer Fields
Forums
Grandstands
Giant Strides
Golf Courses
Gymnasiums (Indoors)
Handball Courts
Hockey Fields
Horizontal Ladders
Horseshoe Pitching Courts
Horizontal Bar Outfits
Ice Skating Areas
Jungle Gyms
Kindergarten Classes
Lockers (For Dressing)
Merry-Whirl Outfits
May Party Areas
Model Yacht Ponds
Model Yacht Storage
Nature Trails
Paddle Tennis Courts
Parallel Bar Outfits
Pavilions
Pianos
Picnic Areas
Playgrounds for Children
Playhouses (Portable)
Portable Motion Picture Screens
Portable Showers
Portable Stage
Quoits
Recreation Areas
Recreation Buildings
Recreation Piers
Roller Skating Areas
Roller Skating Tracks
Row Boating
Running Tracks
Saucer Showers
School Farms
Seesaw Outfits
Shower Baths
Shuffleboard Courts
Skiing Areas
Skippo Courts
Slides—Kindergarten
Slides—Playground
Soccer Fields
Stadium (Running Track, etc.)
Swings—Garden
Swings, Outfit, Jr.
Swings, Outfit, Kindergarten
Swings, Outfit, Sr.
Swimming Pools
Table Games
Table Games, Kindergarten
Table Games, Ping Pong
Table—Sand
Tennis Courts
Toboggan Chute
Track and Field Events
Volley Ball Areas
Wading Pools

NOTE: Minimums and standards from the National Recreation Association. Check list of Structures from the National Park Service Municipal Recreation Survey. Check List of Facilities from the New York Department of Parks report.

National and State Parks: A Review

IN THE LAST four years recreation has received a great deal of attention from various Federal bureaus and emergency organizations. More than 16 million acres of land are now administered by the National Park Service. The Works Progress Administration has built or improved 5,722 parks, playgrounds, athletic fields, etc. These include 1,400 swimming pools, 6,000 tennis courts, 640 golf courses.

The Emergency Conservation Work program has assisted the National Park Service and many State organizations in carrying forward the development of 46 large "recreational demonstration areas" near large cities throughout the country. Nearly every state in the Union is planning and developing State park and recreational areas. In the last 3½ years, State park areas, if two New York States areas be excluded, have been increased 70 per cent.[1]

The development of a representative group of demonstration parks is reviewed on the following pages by Mr. Earle S. Draper, Director, Land Planning and Housing Division, Tennessee Valley Authority.

These are related to the emergency program which has developed nearly 500,000 acres of national parks, advancing the normal program 25 years.

[1]Park, Parkway and Recreational area study. U. S. Department of the Interior. National Park Service.

Demonstration Parks in The Tennessee Valley

By EARLE S. DRAPER, *Director, Land Planning and Housing Division, Tennessee Valley Authority.*

THE SERIES of reservoirs being created by the Tennessee Valley Authority for the unified control of the Tennessee River and its tributaries will ultimately form one of the largest bodies of inland water in America.

Where necessary to protect these reservoirs from the danger of filling with silt and other damage it is the policy of the Authority to purchase strips of land along the shorelines so that erosion may be directly controlled. Also, in some cases it is cheaper to buy tracts of adjacent land than to relocate roads to serve severed property.

One of the major responsibilities of the Authority is to devise practicable ways and means for the utilization of these thousands of acres of land wherever such use does not detract from the essential purpose of reservoir protection. The TVA realizes that this chain of lakes extending for hundreds of miles through the Valley will enhance the attractions of a region already rich in scenery and climate—the raw materials of the recreation industry. Therefore, it is evident that the provision of recreational facilities at strategic points, convenient to both tourists and the local population, is an important element in the development of certain areas along the reservoir shorelines.

Thus, through the combined efforts of the TVA, the National Park Service, and the Civilian Conservation Corps, appropriate areas bordering the Authority's new reservoirs are being developed as wilderness parks reproducing as nearly as possible the primeval conditions familiar to the early travelers and settlers of the region.

In a detailed study to determine the proper utilization of the acreage acquired by the TVA as a protective zone around Norris Reservoir, a definite need was found for at least two large-scale parks in the vicinity of Knoxville and outlying communities and centers of tourist interest. The Authority set aside two extensive tracts known as Norris Park and Big Ridge Park which, although opened to the public only last year, already play an important part in the outdoor activities of the people of the locality as well as tourists.

Both of these parks are accessible either by modern highways or from Norris Lake by boat. In each park, relatively small areas were set aside for intensive development; the remainder perpetuating as nearly as possible the natural conditions of the upper Tennessee Valley during pioneer days. Only short stretches of improved road lead into the park areas, as the intention is to encourage hiking and camping within the boundaries rather than mere sightseeing.

These two parks are linked by the tract of land known as Norris Town Forest which extends between them along the shore of Norris Reservoir. This wooded tract of several thousand acres is being maintained as a demonstration of the application of practical methods of forest management on a sustained yield basis. For instance, the residents of Norris are permitted to cut dead trees for use in their fireplaces, and it is expected that controlled logging operations will eventually be allowed in certain matured areas of the forest. Reforestation is being carried forward where needed in the area and, for recreation use, the Town Forest also supplements the wilderness areas of the two adjoining parks.

NORRIS PARK contains 3,887 acres, about forty of which have been intensively developed. Lying approximately 26 miles from Knoxville and extending between the town of Norris and the reservoir, this tract has a frontage of about three miles along the water which, together with the high scenic character of the locality, makes it especially desirable for recreational use.

A TYPE OF RECREATIONAL PARK gaining greater favor every year. Norris Park, Tennessee, devleoped by the Tennessee Valley Authority, the National Park Service and the Civilian Conservation Corps.

The highest elevation within the park is Reservoir Hill, on the crest of which the water supply for the town of Norris is stored. A winding drive leads up this steep hill from the top of which a widespread panorama is visible in every direction, including views of Norris Dam on one hand, and Norris Town on the other. Adequate parking space, a picnic ground, and an open-walled overlook shelter are provided at this vantage point.

In approaching the main entrance to Norris Park from the south, a striking contrast to the huge bulk of the nearby powerhouse and dam is an old-time water mill which has been reconstructed as an early example of water-power utilization. Formerly located on a stream now inundated by the waters of Norris Reservoir, this old gristmill had been in continuous operation by members of the same family which constructed it 140 years ago. All of the mill's mechanism was hand-made of fire-hardened wood and hammered iron.

Entering the park near the east abutment of Norris Dam, an improved road leads into the intensely developed area. Near this point, and overlooking Norris Dam and Reservoir, an improved picnic ground, complete with parking areas, shelter, toilets, table-and-bench combinations, ovens, and drinking fountains has been provided. An improved campground with individual turnouts, where trailers may be parked or tents pitched, is served by a centrally located wash house and electric lines, and a fresh water supply; tables and benches have been installed.

The recreation lodge with its open terraces extending across front and rear is a popular gathering place for both day-outing visitors and as a lounge and meeting place for vacationists occupying the cabins and camp grounds. A fully equipped kitchen is available for the preparation of meals and refreshments. A small commissary opening off the lobby carries soft drinks and light food supplies for campers. Toilet facilities for men and women are also provided in the building.

Immediately across the road from the recreation lodge an outdoor theater is well adapted for theatrical productions, concerts, school exercises, pageants, addresses, and other presentations before groups. Located in a natural bowl in the hillside, with a

native stone retaining wall marking the stage level and with seats of split logs, this unpretentious theater forms an attractive feature of the development. Spotlights, footlights and the necessary equipment for producing plays are provided.

The park superintendent's cottage is located so that all traffic must pass it on the way to the cabin group. This is a six-room, fully equipped cottage with an office and a detached two-car garage.

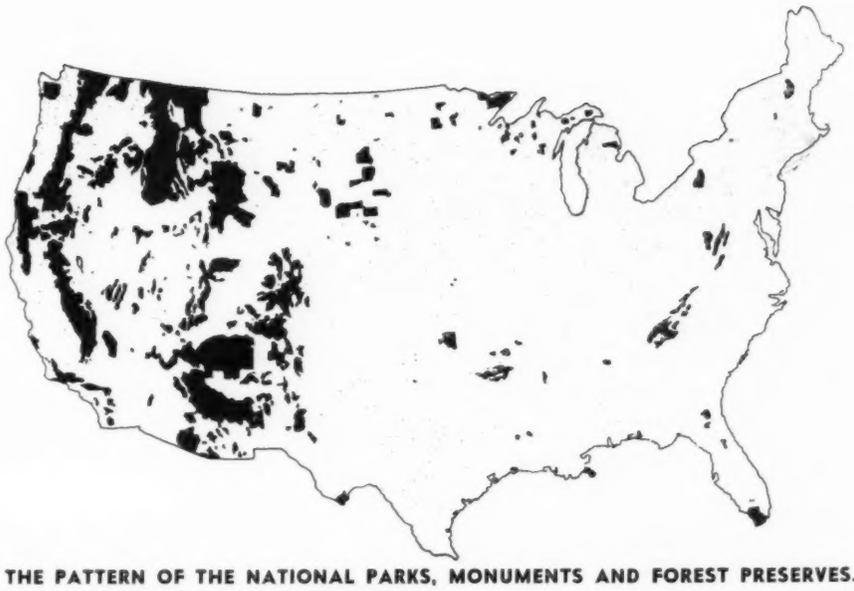
Fifteen cabins were available for occupancy last year and, due to the great demand during the season, five more cabins have recently been built. Of these twenty cabins, five are of duplex type—thus providing twenty-five housing units. Each cabin accommodates two to four people and extra cots may be arranged for if desired. All of the cabins are supplied with running water and all have inside toilets and showers except five which are served by a centrally located wash house. Each cabin is completely equipped for housekeeping, so that the vacationist need supply only food.

A riding stable where saddle-horses may be rented from a concessionnaire has been a popular feature at this park. A hostler's cottage has been provided, and there is a service building for use as a truck garage and repair shop.

An ingenious floating dock and stairway has proved entirely satisfactory as a means of docking small boats at all times despite the expected variation of water level resulting from the reservoir draw-down. At present no bathing beach has been provided in this park, but plans are under way to satisfy this need.

THE PARK AT BIG RIDGE consists of approximately 4,500 acres, of which about 100 acres have been intensively developed. Lying about twelve miles east of the town of Norris, this park is unique in that it is practically surrounded by the waters of Norris Reservoir, with only a narrow neck of land connecting it with the mainland. The hight point in this island-like park rises more than 500 feet above the surface of the water: overlooking the reservoir at a point where it is several miles wide and inundating the former site of the old village of Loyston, now lying submerged more than a hundred feet below the surface of the water.

The intensively developed portion of this park is located on the shores of a 45-acre constant-level lake formed by damming an arm of the reservoir so that the impounded water is not subject to the seasonal draw-down of the main body of water. The concrete dam is about fifty feet high and nearly 200 feet long, with a timbered guardrail safeguarding the footway along the crest.



THE PATTERN OF THE NATIONAL PARKS, MONUMENTS AND FOREST PRESERVES.
America's expanding recreational lands. *Courtesy National Park Service*

The bathing beach at Big Ridge Lake has been developed around a peninsula jutting into the lake. There is a bathhouse with dressing rooms and showers, and a sand beach with a diving platform and springboards. A wading pool for children is separated from the deeper water used by the more advanced swimmers. Water is pumped from the middle of the lake to freshen the areas along the beach. A boathouse with a 75-foot pier for mooring small pleasure boats is another popular feature of the lake development. Other provisions are similar to those in Norris Park.

THE DEMONSTRATION PARKS AT WHEELER, WILSON, AND PICKWICK LANDING DAMS have been developed on the basis of day-outing parks rather than vacation camps. However, it is intended that cabins and other facilities for extended outings will be provided in these parks whenever the need becomes evident.

A Negro park in the Wilson Dam reservation has been developed in a manner similar to the other demonstration parks in this area. This park is complete with picnic grounds, shelter, sanitary facilities and improved paths; but no cabins have yet been built as the users seem to favor day-outings rather than more extended visits.

A demonstration park is being developed near Huntsville, Alabama. Here the park area consists of about 2,000 acres of heavily wooded land on Monte Sano Mountain which overlooks the City of Huntsville, lying more than a thousand feet below.

For more than a hundred years Monte Sano Mountain has been a favorite vacation spot, and at various times summer cottages and a few permanent homes as well as a large resort hotel have been built on the mountain.

Seven vacation cabins have been built in Monte Sano Park, and eighteen more are contemplated. These are of stone, as is the nearby recreational lodge.

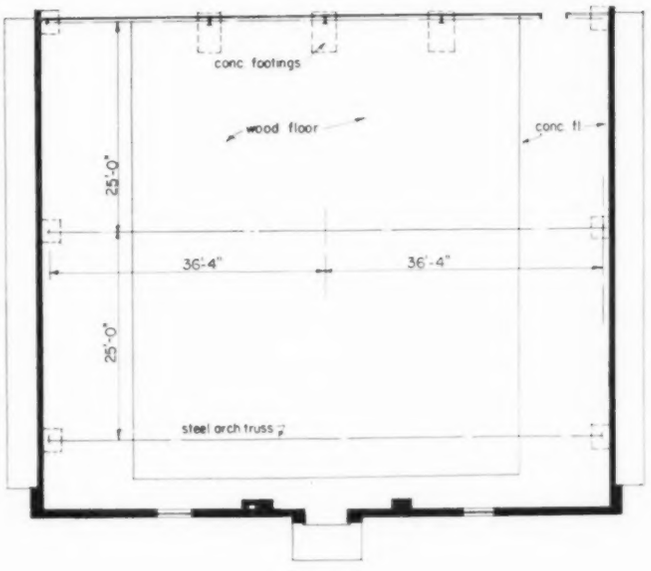
Near the parking areas are picnic grounds with outdoor ovens and table-and-bench combinations, drinking founts, sanitary facilities and shelters. Two overlook shelters are to be built on commanding heights at the edge of the stone bluffs which encircle the development.

A superintendent's cottage and garage of frame construction as well as a riding stable and service building group have been finished with rough-sawn siding to harmonize with the heavily wooded surroundings.

A 75,000-gallon reinforced concrete storage reservoir and connected water supply mains are now under construction, as is the sewage disposal system.

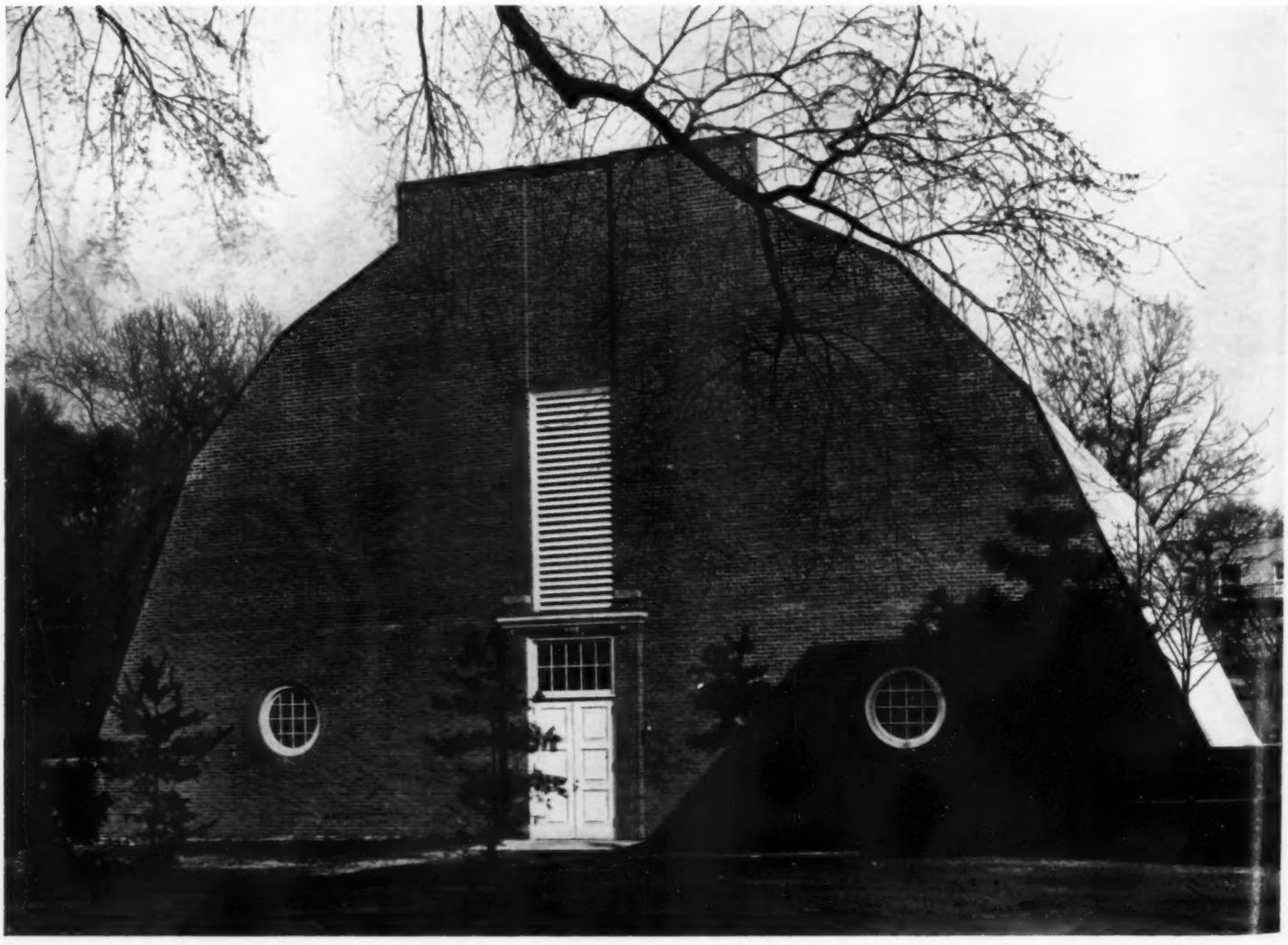
The Monte Sano undertaking is significant, in that city, country, state, and three agencies of the Federal government all contributed to the successful launching of the project.

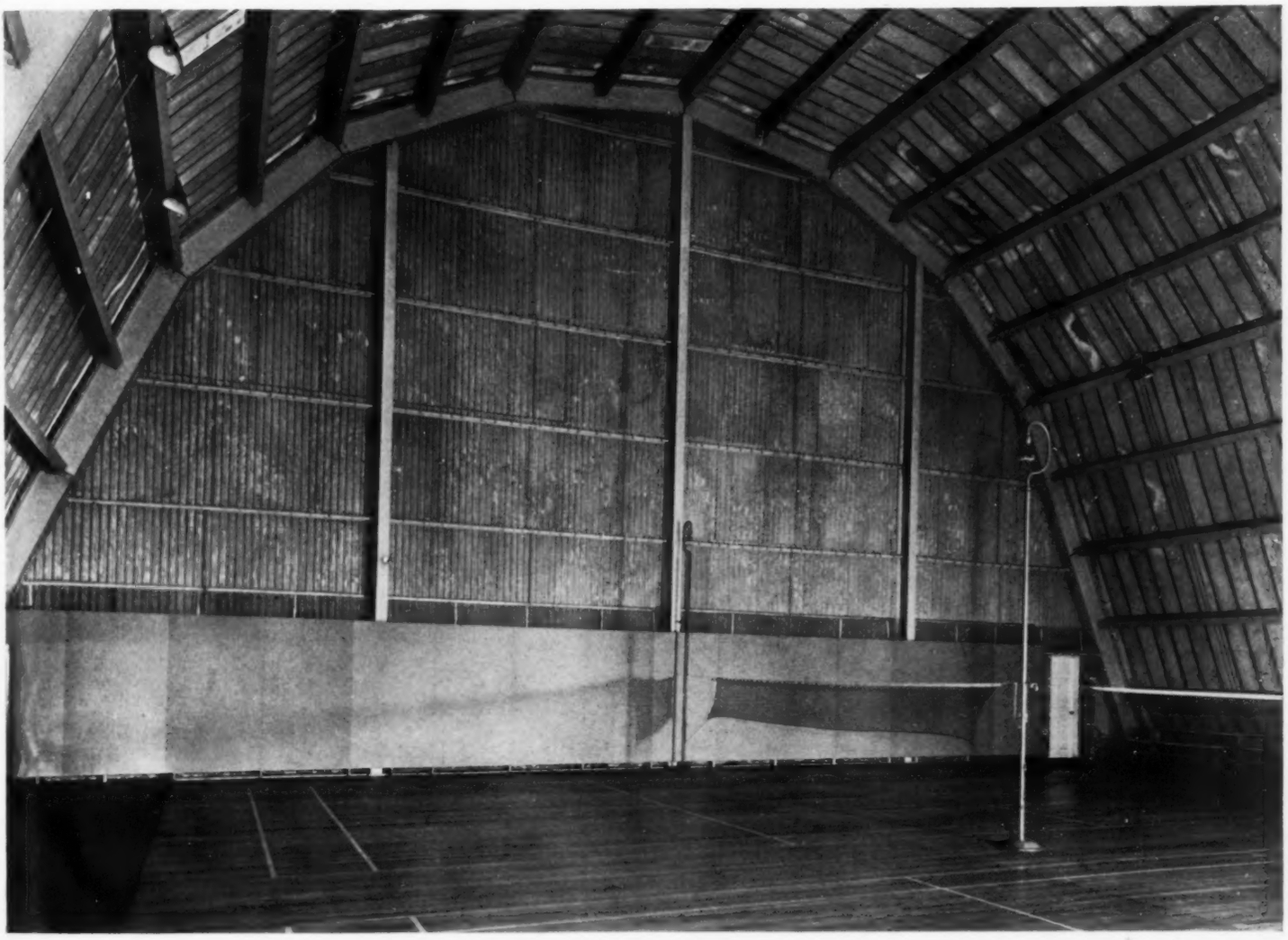
1 BADMINTON BUILDING



PLAN

Badminton Building for the New Haven Lawn Tennis Association. A frank solution architecturally, from the dignified treatment of the front to the honest display of structure in the interior, this building admirably serves its purpose.





The form of the patented "Arch-Roof*" gives the greatest height where it is most needed.

Cost $17,800.

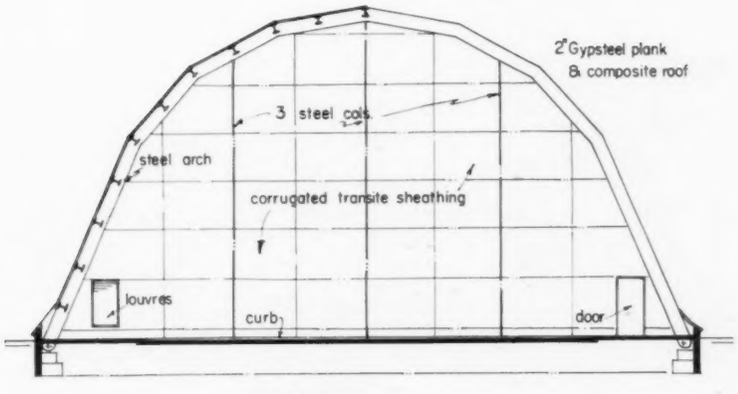
Special heating system to prevent air currents interfering with the game.

Roof—Gypsteel plank.

Floor—Concrete asphalt; playing surface, hardwood maple.

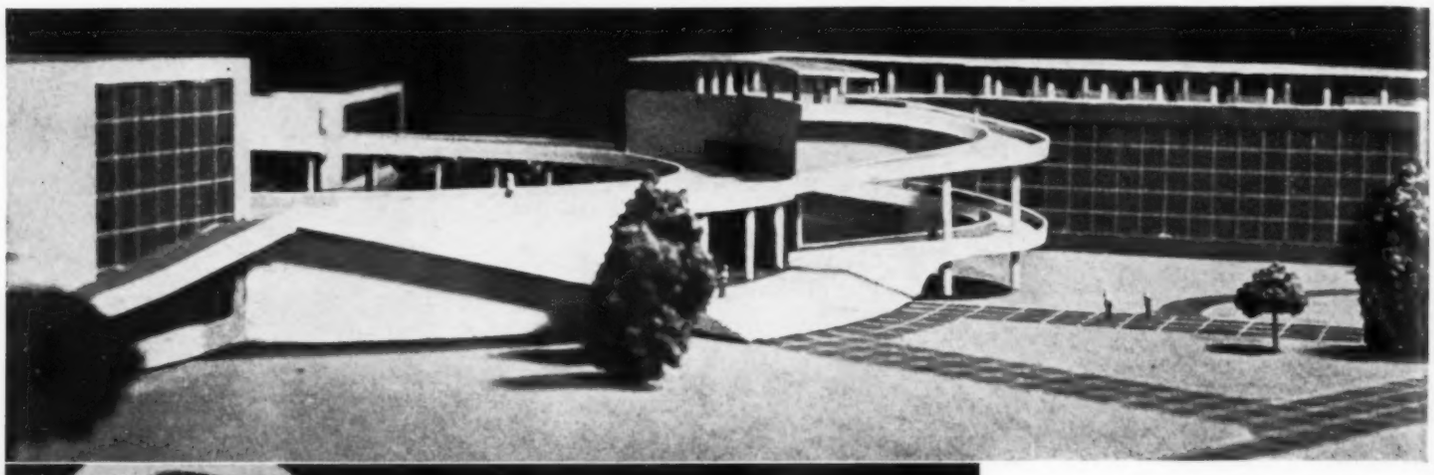
Rear wall—Corrugated Transite to be removed for later addition.

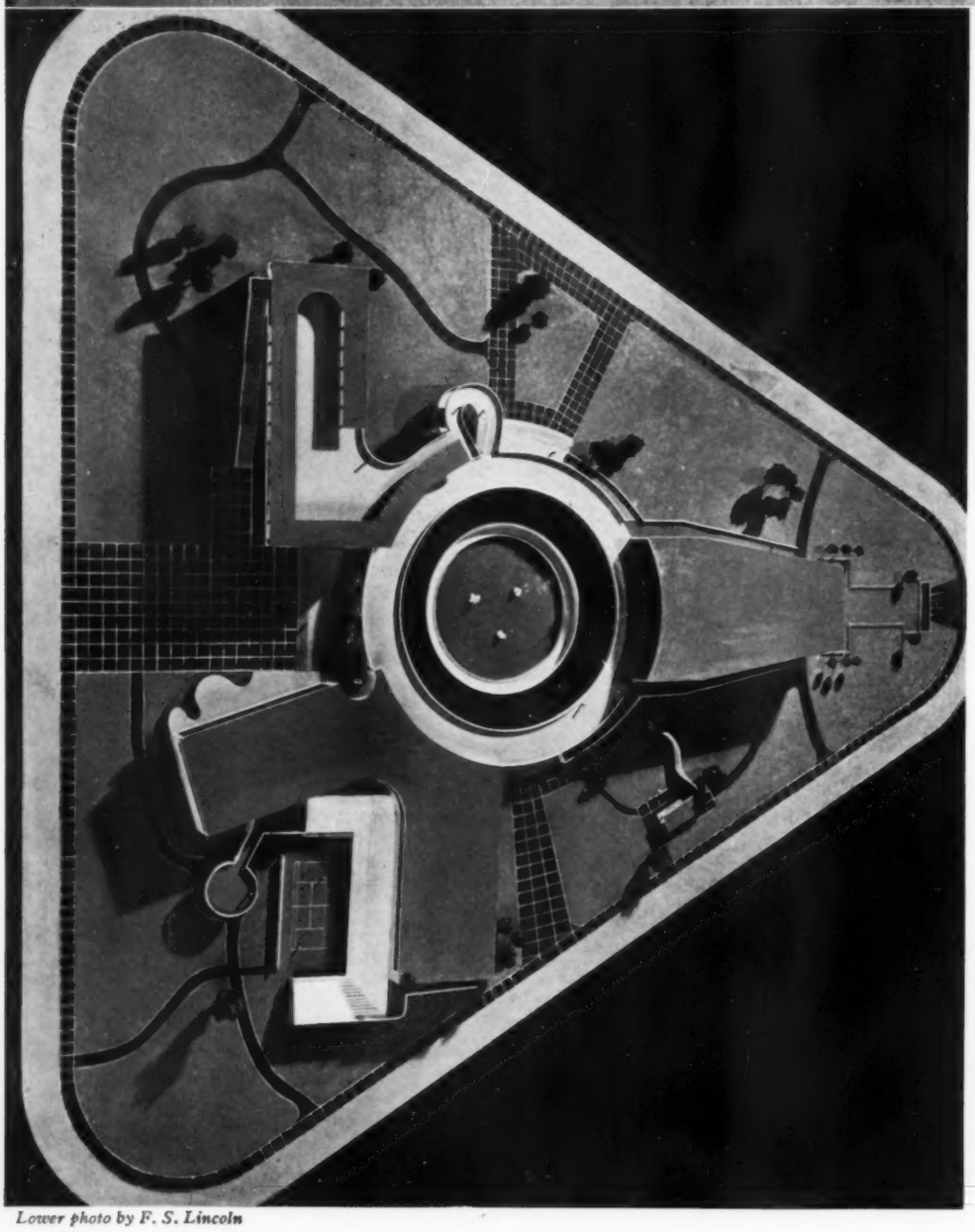
**Patented arch by The Arch-Roof Construction Co., Inc., New York City.*



SECTION

2 RECREATION CENTERS





Lower photo by F. S. Lincoln

Recreation center by Architect Oscar Stonorov designed for a World's Fair project. Consists of three buildings arranged about a circular swimming pool. The buildings contain, reading clockwise from lower left: gymnasium, swimming pool, cafeteria, locker rooms and facilities; a library, art gallery, workshops and a scientific laboratory and museum; a large auditorium for plays, music, movies, dance and lectures.

Courtesy Public Works Administration

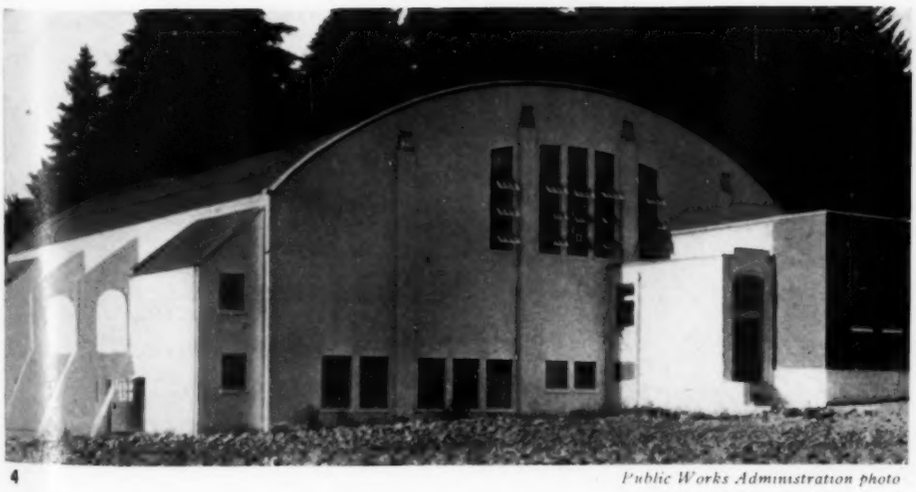
1

Photo by Works Progress Administration

2

Resettlement Administration photo

3



Public Works Administration photo

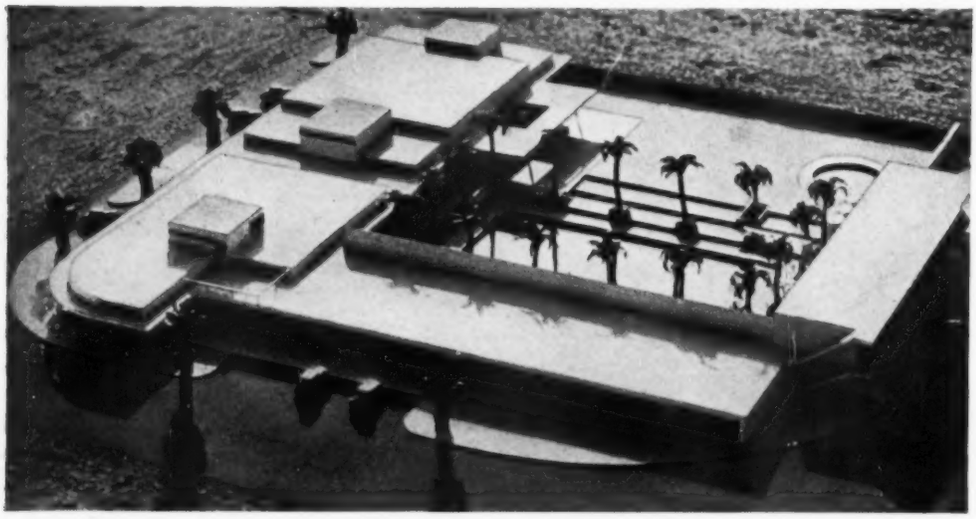
4

1. Art Museum, University of Virginia. Edmund S. Campbell and R. E. Lee Taylor, architects.

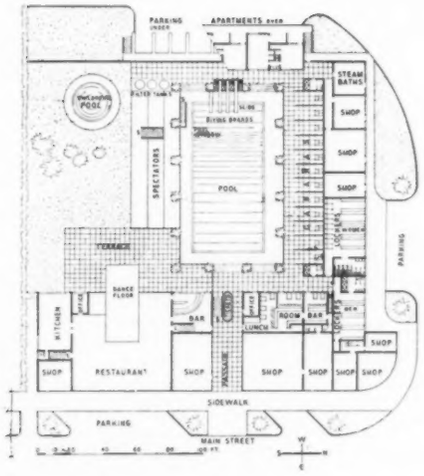
2. Tourist Information Station, Portland, Maine, built by the WPA.

3. Baxter part-time village built by the Resettlement Administration, showing the community recreation building as the focal point of the plan.

4. A gymnasium for the Oregon State Normal School at Monmouth.



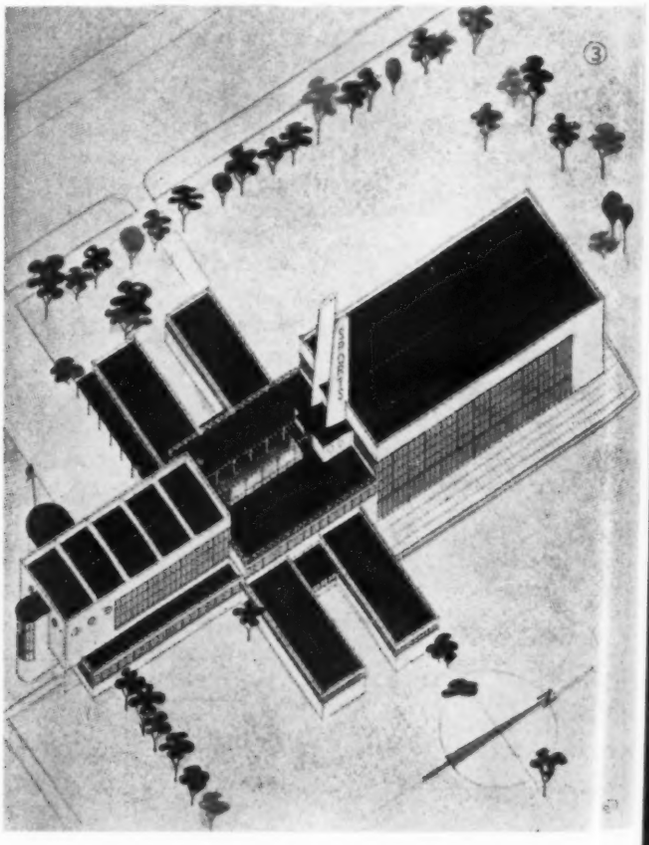
1



1. Recreation project proposed for Palm Springs, California. Planned for a site located within walking distance of the center of town. The swimming pool is surrounded on three sides by shops, apartments and dressing rooms. These afford protection on the north, leaving the south open for sunlight and view.

2. Physical Training Center for the management, Manchester Building Trades Exhibition, Manchester, England. Peter Cooke is the architect who placed first in the competition.

The rear building is the gymnasium; the central cross section contains dressing and locker rooms; the entrance hall and offices are in the front portion with clubrooms on the second floor.



2

3 SHELTERS

1

Courtesy Dept. of Parks, New York City

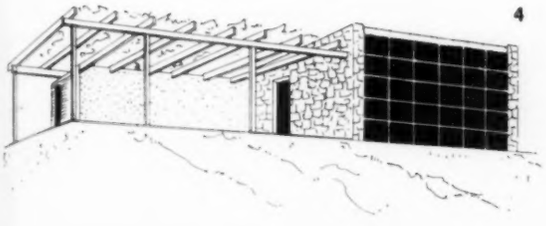
1. Golf House, Pelham Bay Park, Bronx, New York.

2. Shelter—Lake Worth State Park, Texas.

3, 4. Playground shelters—Designed by Carl Fricke for the National Recreation Association. The two-story type is particularly suited to small intensively used play areas as it increases the amount of available play space. The one-story type is well suited for year-round use.

2

Photo by National Park Service



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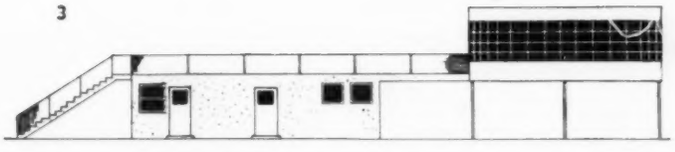
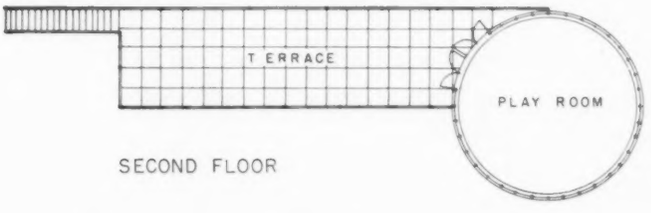
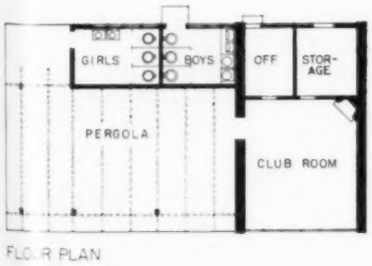


3

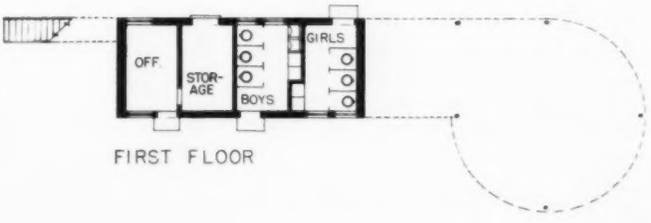
FRONT ELEVATION



SECOND FLOOR



FLOOR PLAN



FIRST FLOOR

4 SWIMMING POOLS

1

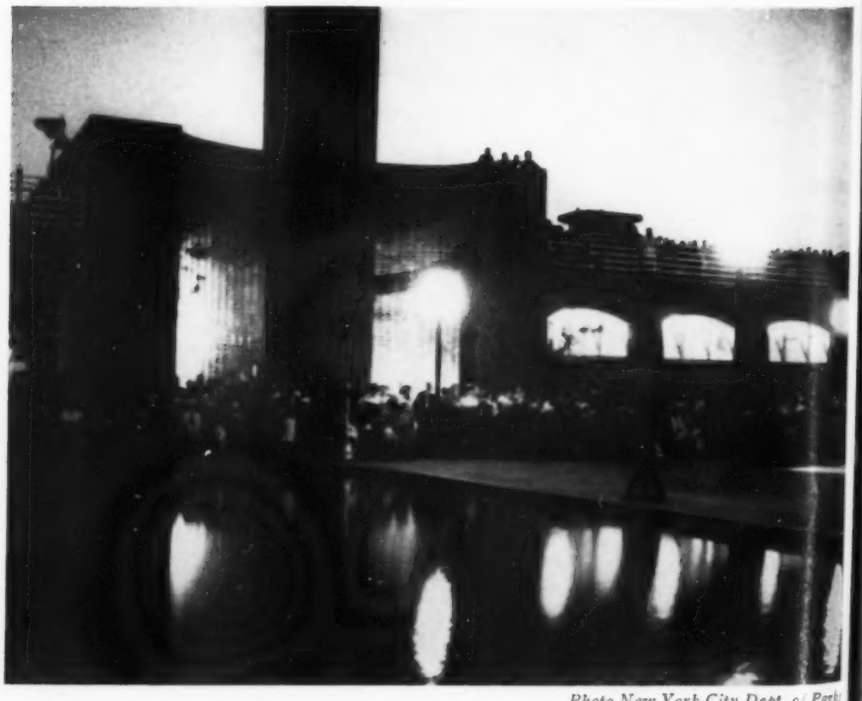
New York City Department of Parks

2

Courtesy Westinghouse Electric Co.

3

Courtesy Wallace and Tiernan



4

Photo New York City Dept. of Parks

1. Swimming and diving pools, Sunset Park, Brooklyn, New York.

2. Genesee Valley Park Pool, Rochester, New York, showing excellent lighting results. Westinghouse underwater and overhead floodlighting.

3. Indoor swimming pool, Brooklyn College, Brooklyn, New York. Randolph Evans, architect. Recirculating water with Wallace and Tiernan chlorination system.

4. Tompkinsville pool, Staten Island, New York.

Works Progress Administration photo

1

Photo Hedrich-Blessing Studio

2

New York City Department of Parks

3

4

5

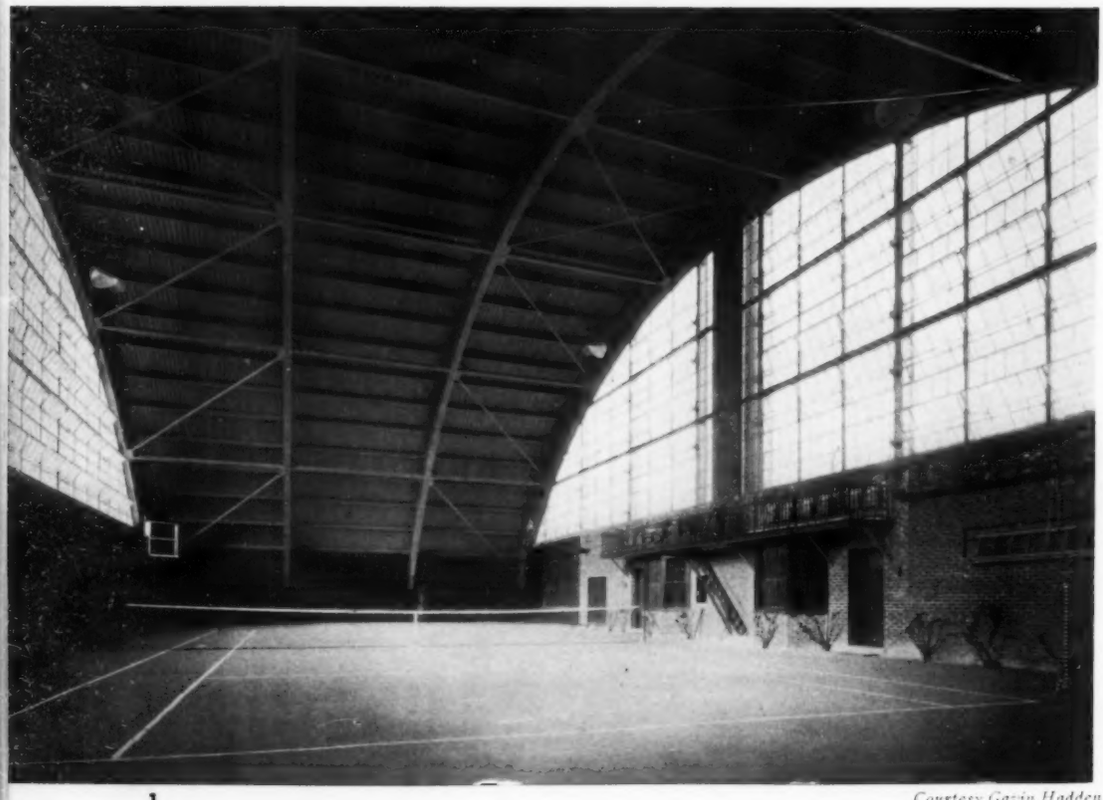
1. Swimming pool at Shushan Airport, New Orleans, La., with a pleasing use of concrete for benches, diving board stands, etc.

2. Swimming pool and bathhouse for Leonard Florsheim, Highland Park, Illinois. Benjamin Marshall, architect.

3. Large swimming pool and bathhouse, Crotona Park, Bronx, New York.

4, 5. Aarau Municipal Baths on the River Aar, Switzerland. Adolf Studer, architect, and M. Schnyder, engineer. Contains eight basins; one large pool; two beginners' pools; four children's pools and a wading pool for infants.

5 TENNIS



1

Courtesy Gavin Hadden

1. Tennis Court Building at Beverl Mass., designed by Gavin Hadden. T type of patented construction is di tated by the tennis ball's path and ma mum daylighting. Floodlights are plac for similar results at night.

2. Covered tennis courts at Cove Nec New York, designed by Gavin Hadde A similar solution for more than o court.

3. Concrete tennis courts constructed top of a reservoir at Beverly Hills, Ca fornia.

2

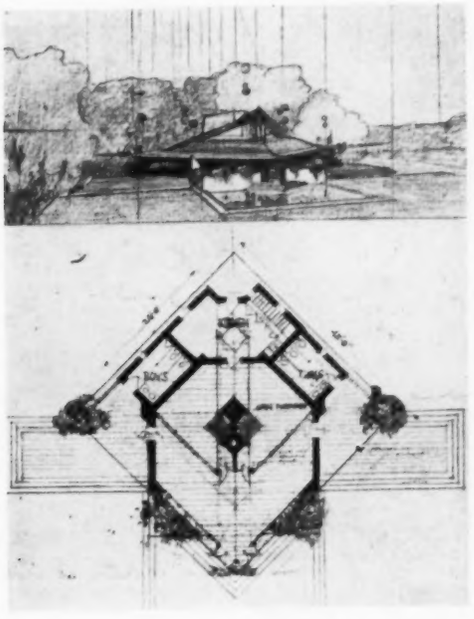
Courtesy Gavin Hadden

3

Courtesy Public Works Administration

6 CABINS-SHELTERS

Photo by Tennessee Valley Authority 1



3

Courtesy National Park Service 4

Courtesy National Park Service 5

Photo by Tennessee Valley Authority 2

Courtesy National Park Service 6

1, 2. Typical cabin interiors, Norris Park, Tennessee.

3. Playhouses in Oak Park, Illinois. Frank Lloyd Wright, architect.

4. Guest Lodge, Mimi Itasca, National Park Service.

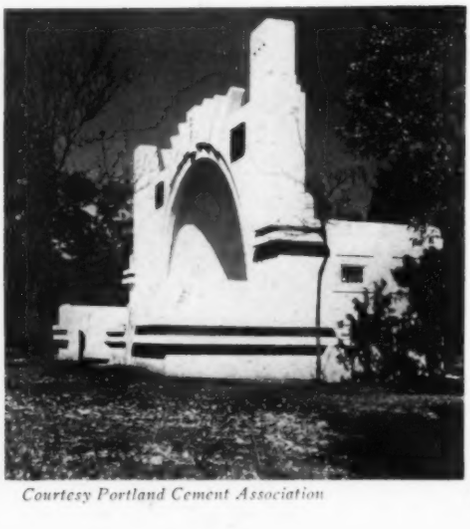
5. Fountain Shelter, Lake Guernsey State Park, Wyoming.

6. Shelter, Clarence Fahenstock Memorial Park, New York.

7 AMPHITHEATERS - BAND SHELLS

Photo by WPA

1



Courtesy Portland Cement Association

2

1. Amphitheater at Allentown, Pa. Trees serve as an effective backdrop making a simple but dramatic setting for performances. Built by the WPA.

2. Band shell at Fort Scott, Kansas. Gerald A. Griffin, architect. Reinforced concrete construction.

3. Band shell—Toledo Zoo Park, Toledo, Ohio.

3

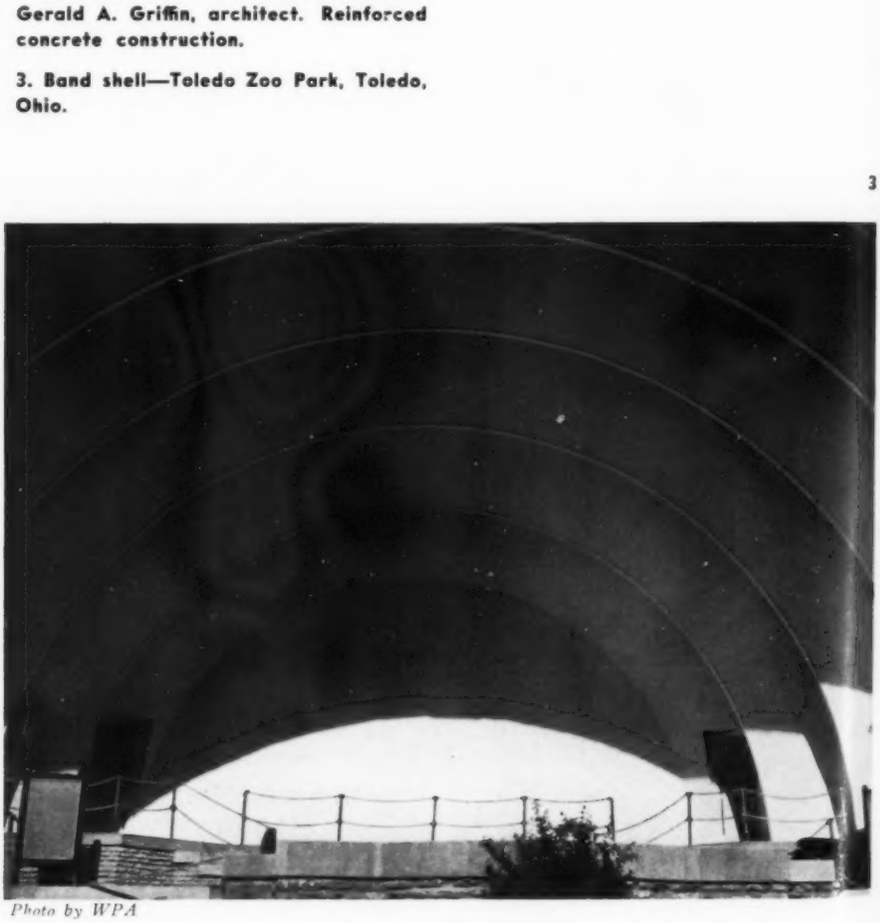


Photo by WPA

8 AMUSEMENT PARK

Buildings in Blackpool Pleasure Beach, England, designed by Joseph Emberton, F.R.I.B.A. The spirit of buffoonery takes on a new significance in these excellent structures. Temporary structures built of rough texture painted wallboard to simulate concrete. The disposition of mass is cleverly designed to further the illusion.

1. The "Fun House."

2. The "Grand National."

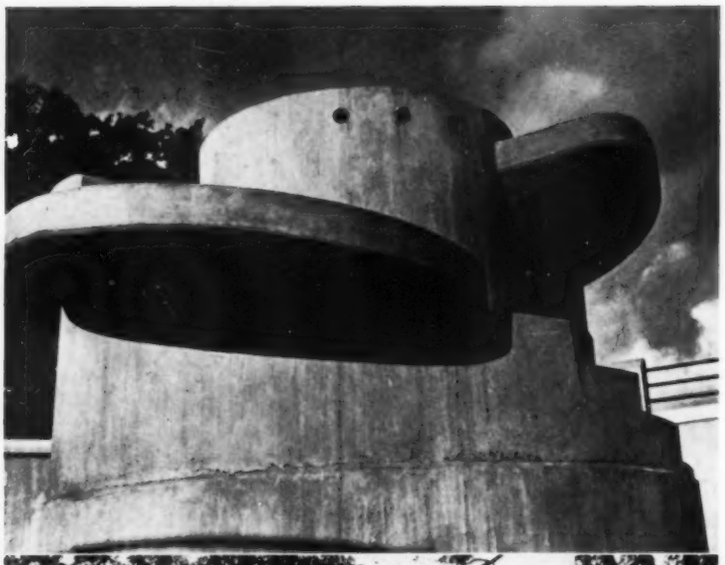
3. The "Pleasure Beach Express," a miniature railway station.

1

2

3

9 AQUARIUM - ZOO



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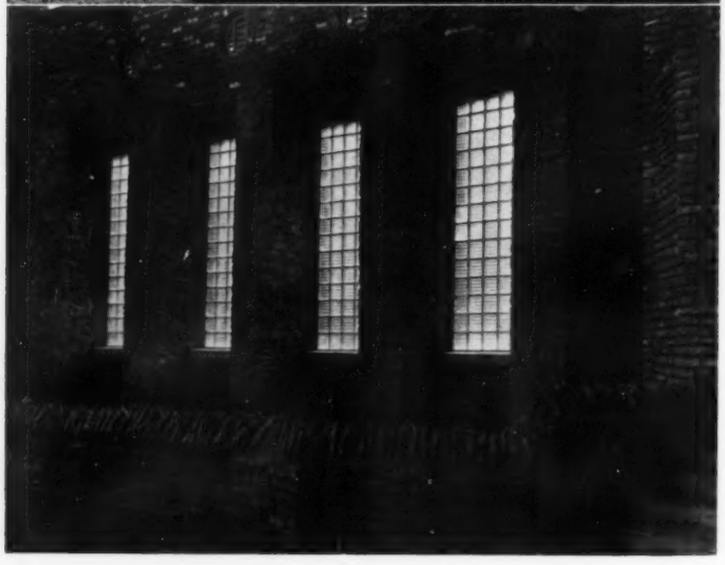


3

Photo by WPA

4

1. Sea lions' diving platform, Delaware Zoo, Buffalo, New York.

2, 3. The Aquarium, Toledo Zoo, Toledo, Ohio. Constructed by the WPA.

4. Monkey House, Little Rock, Arkansas. Another WPA contribution.

10 PLAYGROUNDS

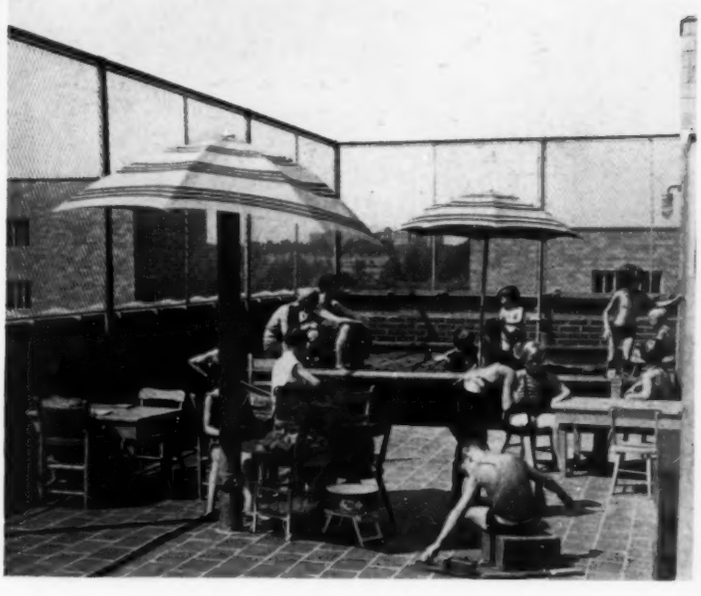
1

Ewing Galloway photo

New York City Department of Parks

2

3



1. A model playground on a vacant lot in New York City. Murals have been painted on the walls of surrounding buildings.

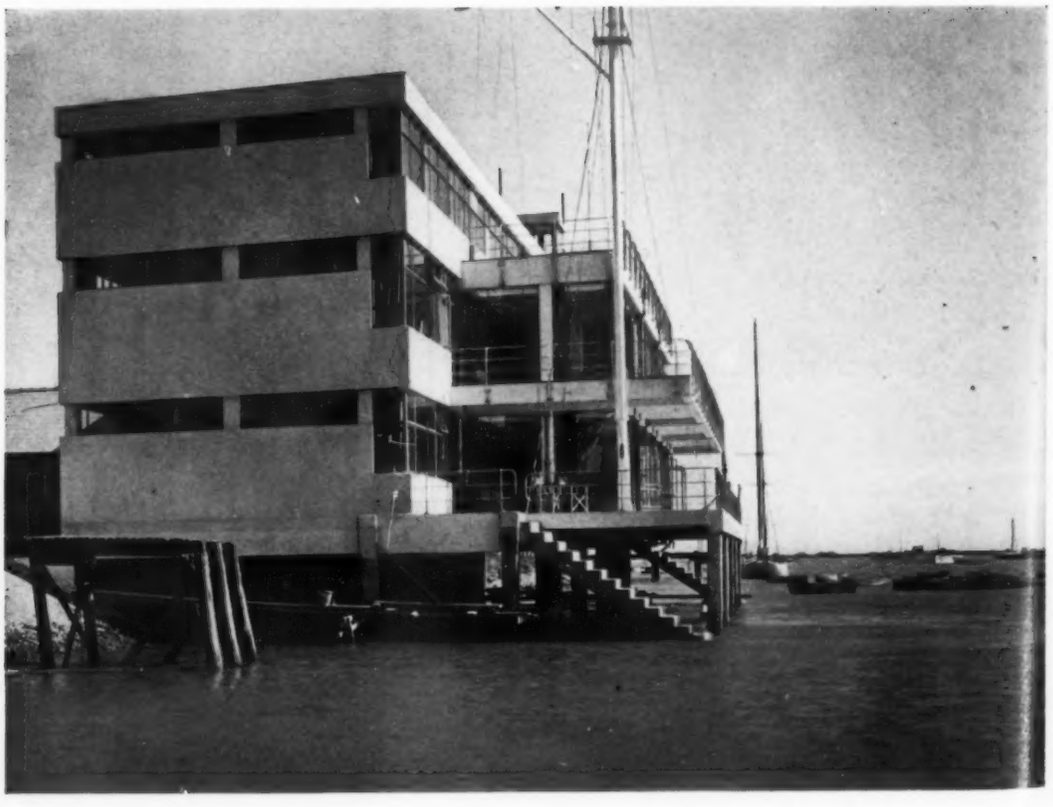
2. A playground on the margin of a large park, Central Park, New York.

3. Play space on the roof of the Juniata Park Housing Project, Philadelphia, Pa.

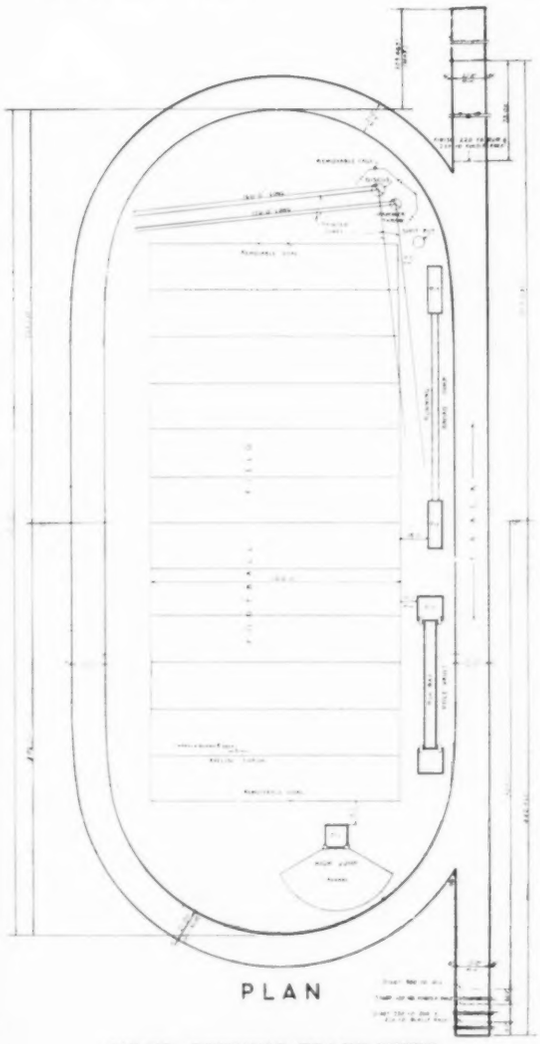
11 YACHT CLUB

Photos by Herbert Felton

Yacht Club at Burnham-on-Crouch, Essex, England. Joseph Emberton, architect. A building for a type of recreation which is gaining wider interest both here and in Europe. Motorboating especially is becoming a more popular sport and will undoubtedly require more buildings of this type.

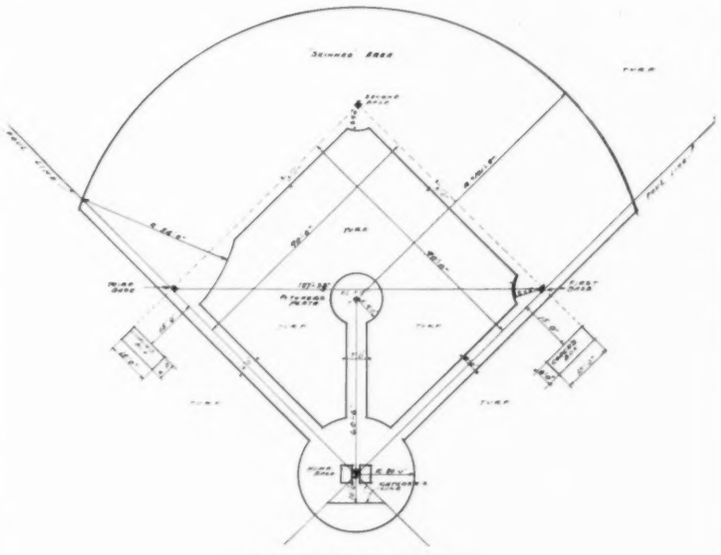


SPORTS – PLANS AND EQUIPMENT

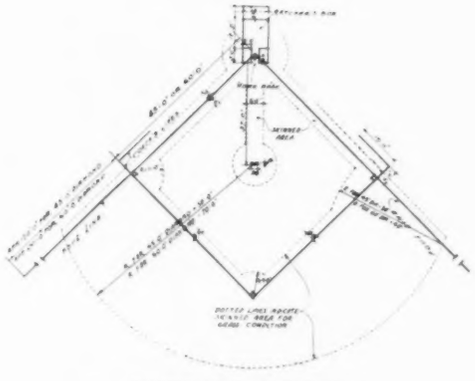


PLAN

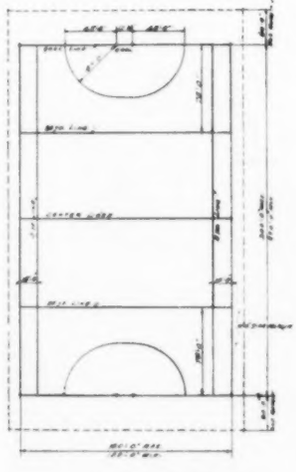
440-YD. RUNNING TRACK WITH FIELD EVENTS



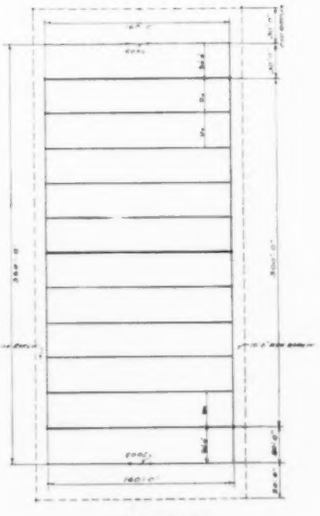
BASEBALL DIAMOND



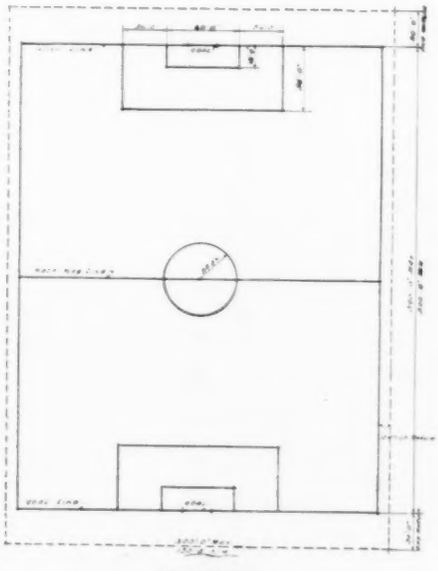
SOFTBALL DIAMOND



FIELD HOCKEY

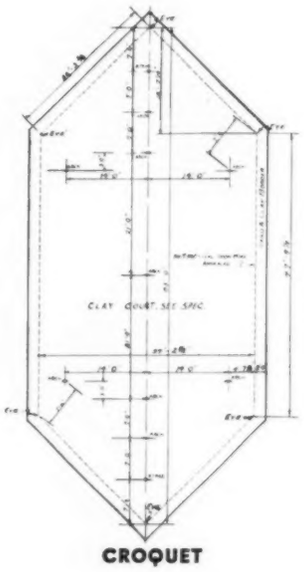


FOOTBALL

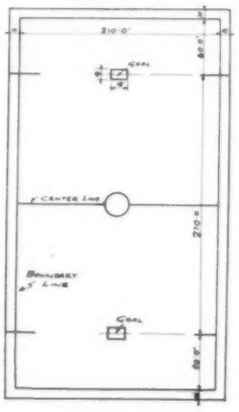


SOCCER

SPORTS – PLANS AND EQUIPMENT



CROQUET



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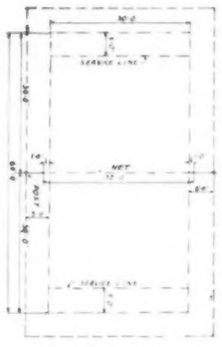

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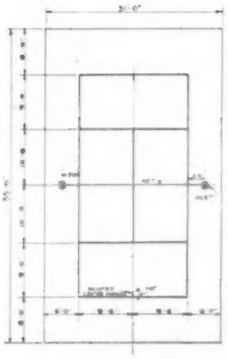
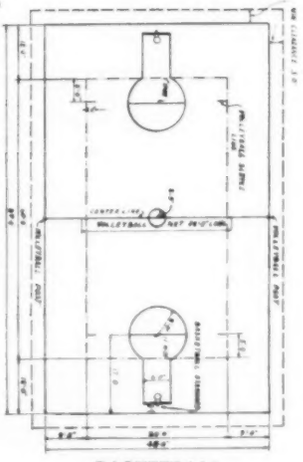
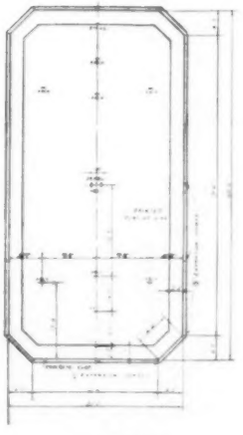


PADDLE TENNIS



BASKETBALL



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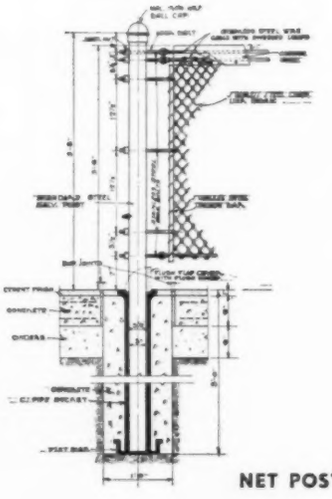

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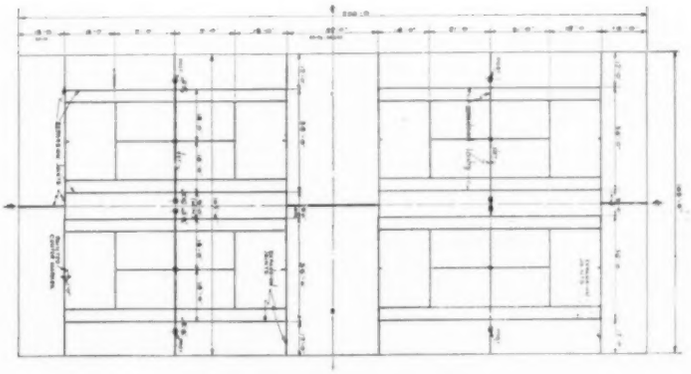
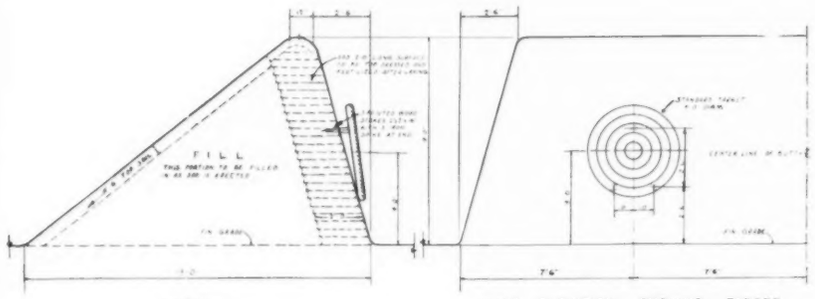
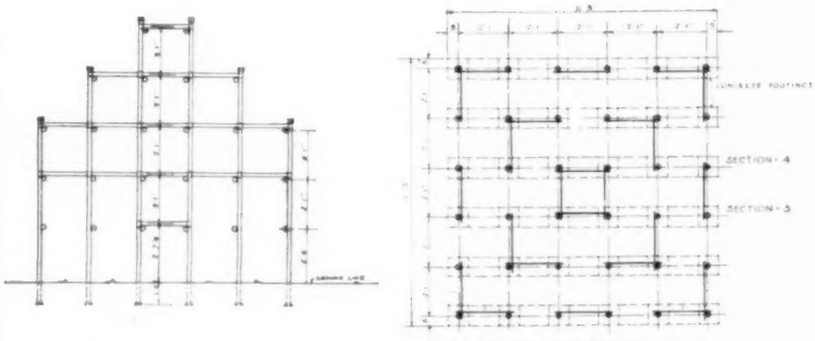


BATTERY OF TENNIS COURTS

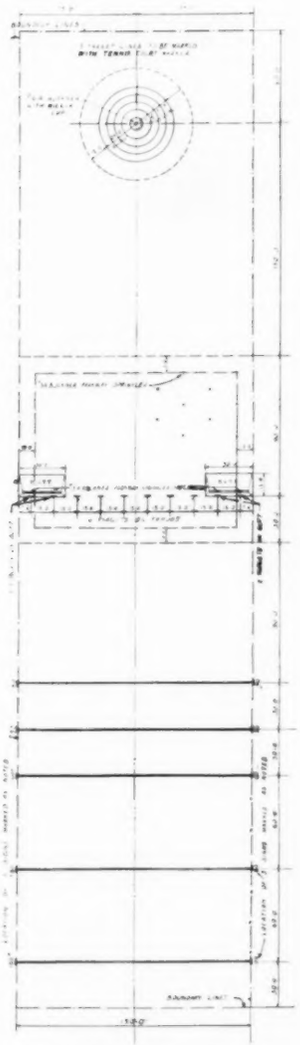
SPORTS – PLANS AND EQUIPMENT



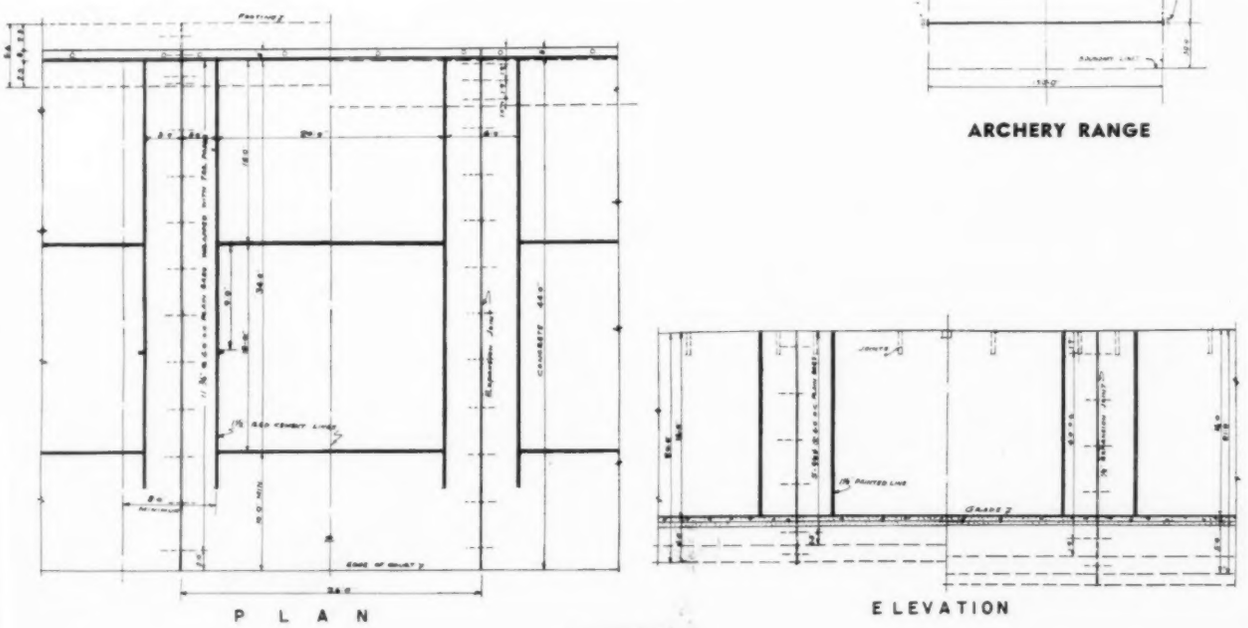
DETAIL OF ARCHERY BUTT



JUNGLE GYM

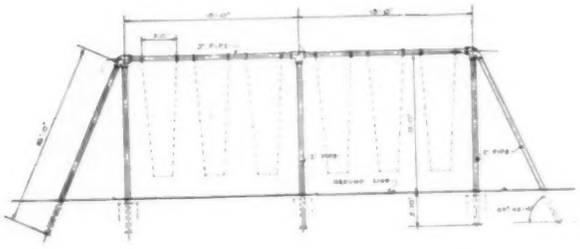


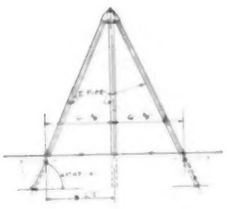
ARCHERY RANGE



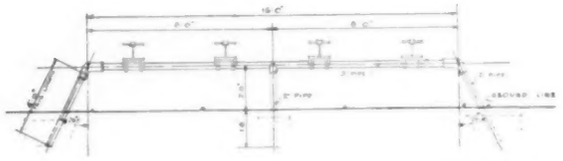
HANDBALL

SPORTS – PLANS AND EQUIPMENT

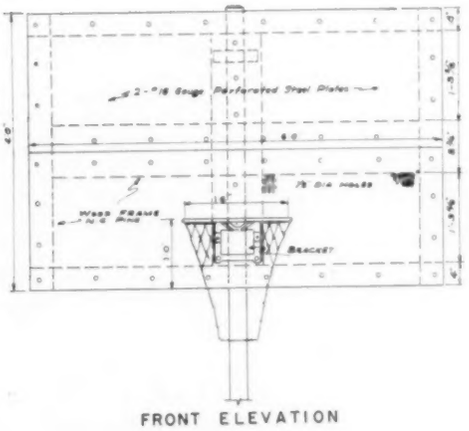




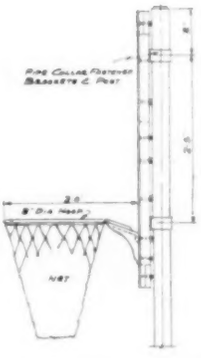
SWINGS



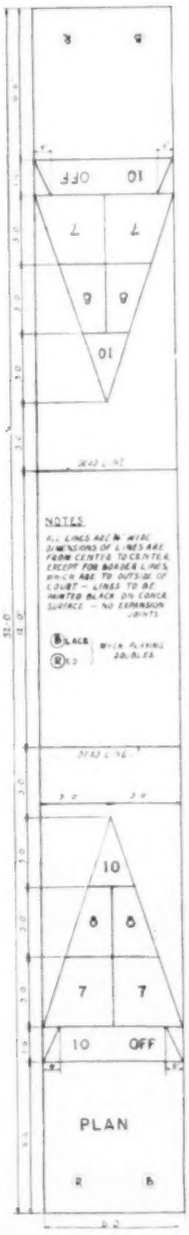
SEESAWS



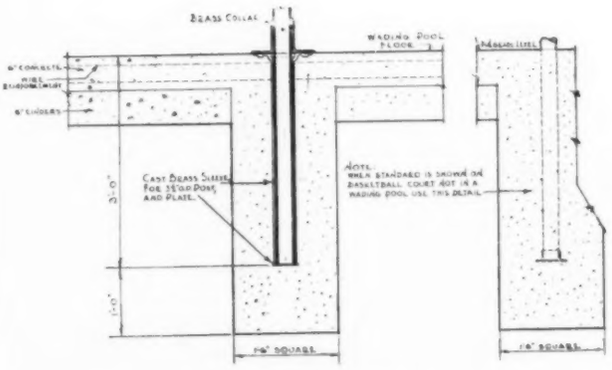
FRONT ELEVATION



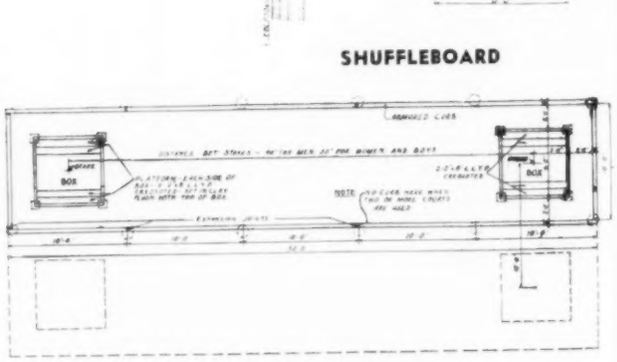
SIDE ELEVATION



SHUFFLEBOARD

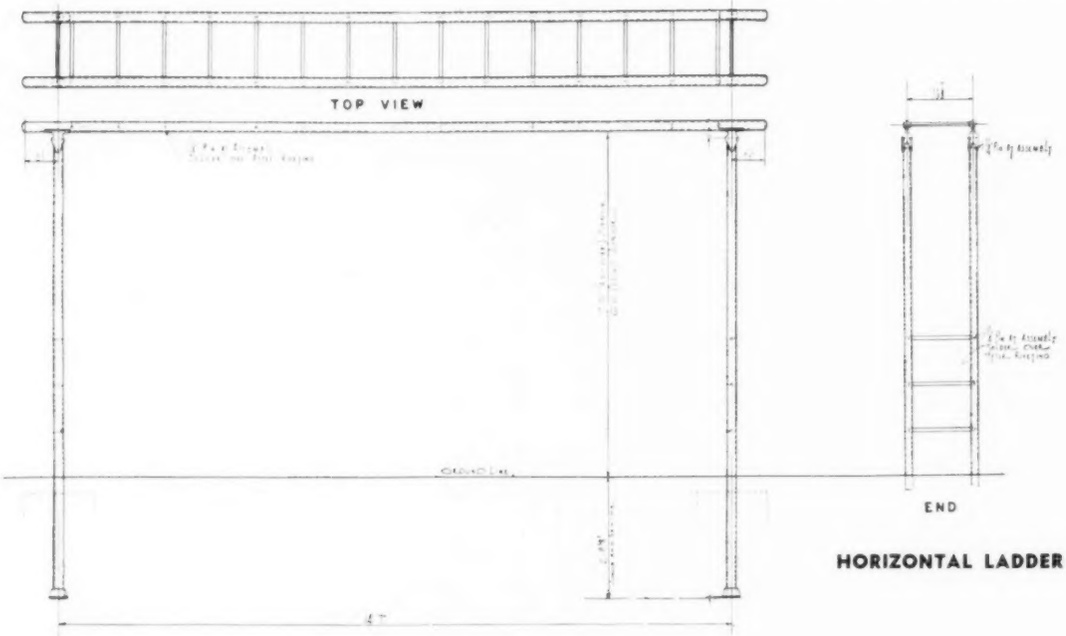

Brass Collar
Wading Pool Floor
Cast Brass Sleeve for 3½" OD Post and Plate
Note: When standard is shown on basketball court not in a wading pool use this detail
16" square
16" square

BASKETBALL STANDARD



HORSESHOE PITCHING

SPORTS – PLANS AND EQUIPMENT



HORIZONTAL LADDER

SECTION THROUGH BRIDLE PATH

Surfacing Play Areas

IN DECIDING upon the proper surface for play areas, the following factors must be considered:
Climatic conditions; particularly in regard to the effects of freezing and thawing, extreme heat and amount of rainfall.
Natural soil condition.
Location and size of area.
Type of activities.
Length of playing season.
Suitability for lighting.
Availability of materials.

The desirable qualities in a surface are: resilience, good drainage, freedom from dust, durability, non-abrasiveness, cleanliness, firmness, smoothness, utility, cost, appearance.

Types of Surfaces Used

Turf: Impracticable on intensively used areas or where sure-footed or accurate play is essential. Unusable when the ground is thawing or wet.

Sand Clay: Satisfactory for many months of the year. A clay with 30 per cent sand content is best. A 4-inch bed of clay, rolled to drainage slope; topping of torpedo gravel and sand up to 3/16" laid loose on top. Two applications per year of calcium chloride crystals to absorb atmosphere moisture and hold dust.

Loam: Surface is plowed deep and material removed to 8" below finished grade; rolled and sloped toward subdrains; topsoil spread and rolled to finish grade; calcium chloride applied in flake form, two pounds per square yard.

Slag: Agricultural slag mixed with soil half-and-half; for best results a 4-inch sublayer of slag, slag and cinders; or slag, cinders and soil should be used.

Crushed Stone: Coarse sharp stones make a loose surface on which it is difficult and dangerous to play active games.

Limestone Screenings: Good. binding

The standards of SPORTS-PLANS AND EQUIPMENT were developed by draftsmen supplied by the WPA for the New York City Department of Parks.

Surfacing Standards
N. Y. Department of Parks

TYPE	CONSTRUCTION
COLPROVIA	
CEMENT	
BLUESTONE FLAGGING	
SPECIAL EARTH SURFACE UNDER APPARATUS	
EARTH SURFACE FOR LARGE PLAY AREAS	
BOCCIE COURT SURFACE	
PLANTING AREAS	
HEXAGONAL ASPHALT BLOCK	
TARVIA-LITHIC	
ASPHALT PLANK BLOCK	
GRAVEL	

qualities, porous, and a good surface for use with night lighting. Area excavated and rolled to desired contour 3″ below finish grade; apply 2″ of "Lime Crest" No. 8; wet and roll; one inch of "Lime Crest" No. 8; spread evenly and roll; wet between rollings; calcium chloride spread 1¼ lb. per square yard; a second coat of calcium chloride in 30 to 60 days spread ¼ lb. per square yard. A similar surface is prepared with one part limestone screenings to two parts gravel, 4″ deep.

Rock Screenings: Fifteen to twenty-five per cent shale for binding; subsurface of cinders rolled to 2-inch thickness; rock screening of 3-inch depth sprinkled and rolled three times.

Bituminous: Usable all year in any weather, low maintenance, easily repaired, good surface. The various types are: cut-back-tar mixed with limestone chips; hot-mix asphalt; rock asphalt; sawdust and asphalt; asphaltic oil with stone chips and spruce shavings. Some of the patented or trade marked products are: Bitumuls, Colas, Tarvialithic, Tormac, Westphalt A, Calrock, Brownes Velvet, Flex-I-Dry, Rock Asphalt, Kentucky Rock Asphalt, Amiesite, Colprovia, Warrenite. Laid on cinder, crushed stone or concrete base. If flooding is necessary for ice skating a seal coat should be applied.

Concrete: The same advantages cited for bituminous surfaces apply to concrete. Specifications are similar to other concrete surfaces. The addition of color removes any objectionable glare.

Others: In addition to the above there are a number of other good surfacing materials such as En-Tout-Cas especially for tennis courts, Rubico, Green or Red Top Dressing, Har-tru, etc.

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Guy C. Foster, Inc. (En-Tout-Cas).
Calcium Chloride Association.
Portland Cement Association.
American Society of Illuminating Engineers.
National Municipal League.

U. S. GOVERNMENT

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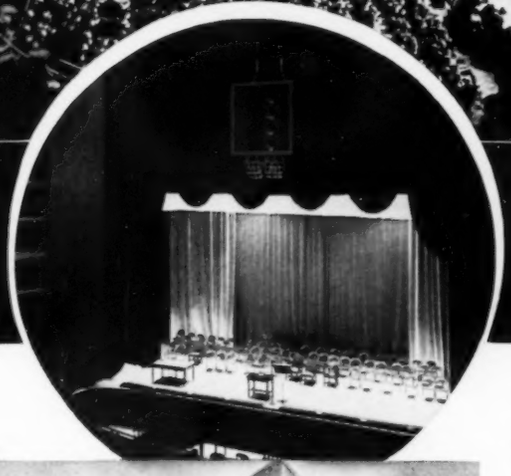
National Park Service.
U. S. Forest Service.
Works Progress Administration.
National Youth Administration.
Public Works Administration.
Department of the Interior.
Department of Agriculture.
Department of Labor.
Resettlement Administration.
Tennessee Valley Authority.

Giant Sound System enables 13,000 to hear every word



Kansas City Auditorium is WESTERN ELECTRIC equipped throughout

TOP: ***The main arena, with high-powered speakers in centrally located "Projectolier."*** CENTER: ***"Projectolier" in the Music Hall.*** BOTTOM: ***Kansas City Municipal Auditorium.***

Engineering and installing the public address system in the Kansas City Municipal Auditorium was a major project. The main arena (seating 13,000 in an area of 4,469,500 cubic feet)—music hall (seating 3,000)—"little" theatre (seating 600)—exhibition hall and committee rooms were all wired for sound.

Every detail of this vast installation was engineered to assure high-fidelity reproduction of speech and music. In the main arena, a *single group* of loud speakers sprays sound to every corner. Thus time-lag interference and echoes are avoided.

Thanks to the combined skill of Bell Telephone Laboratories, Western Electric and Graybar, this giant sound system meets every requirement. When *you* have a project calling for sound distribution, turn to Graybar for "SOUND" advice.

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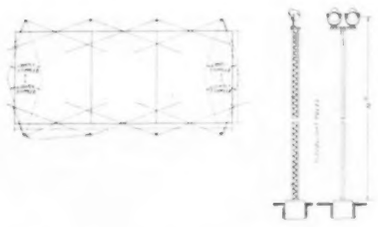
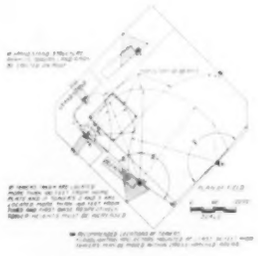
FLOODLIGHTING FOR SPORTS



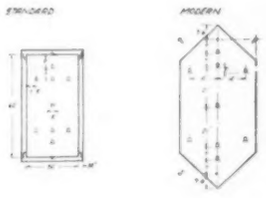
HOCKEY RINK
2 projectors on each pole



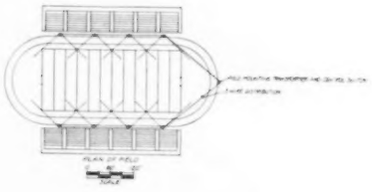
BASEBALL FIELD

NUMBER of PROJECTORS

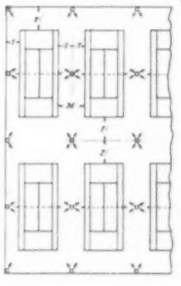
Tower Number	Projectors
1	9
2	22
3	14
4	9
5	22
6	14
Total	90



CROQUET or ROQUE
arrows show projectors

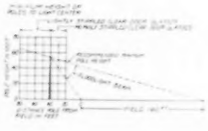


FOOTBALL FIELD
5 projectors on each pole

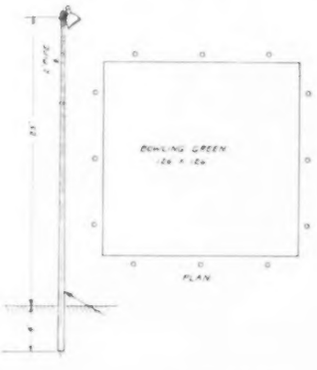


TENNIS COURTS
arrows show projectors

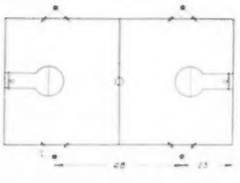
SOFTBALL FIELD
arrows show projectors



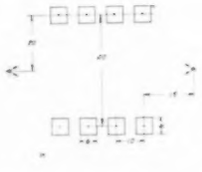
FOOTBALL FIELD—POLE HEIGHTS



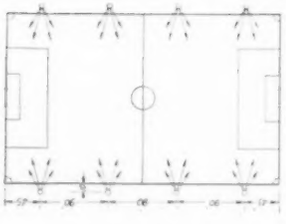
BOWLING ON THE GREEN
1 projector on each pole



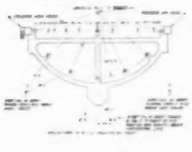
BASKETBALL
arrows show projectors



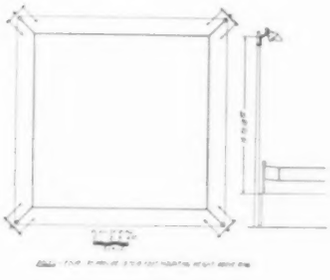
HORSESHOE COURT
arrows show projectors



SOCCER FIELD
arrows show projectors

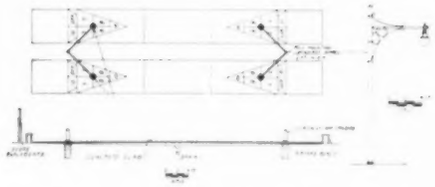


SKEET RANGE
arrows show projectors



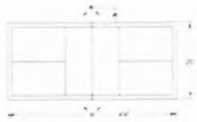
BOXING RING
2, 3 or 5 projectors on each pole

LIGHTING



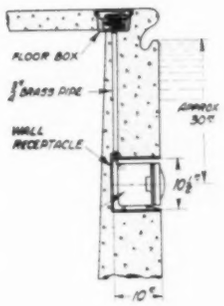
SHUFFLEBOARD COURTS

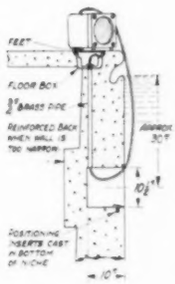
LACROSSE FIELD



BADMINTON

arrows show projectors





UNDERWATER SWIMMING POOL LIGHTING
(Dry Niche)

for front access without draining water

CORRECTIONS • MAY ISSUE

TENNESSEE VALLEY AUTHORITY PROJECT

On page BT 22, Pickwick Landing Dam, Tennessee, should be credited to the Tennessee Valley Authority as one of its projects.

House "A" is one of a group of permanent houses and house "B" is a semi-permanent house in the white community. This distinction was not clearly made in the May issue.

Specify

EN-TOUT-CAS ONLY

There is no "Or Equivalent"

NO ONE can duplicate the extreme desirability of a genuine En-Tout-Cas Fast-Drying court because there are so many conditions no other court manufacturer can match.

NO ONE can duplicate En-Tout-Cas' 25 years of experience building the world's finest hard courts.

NO ONE can duplicate the world-wide reputation for quality that is En-Tout-Cas.

AN EN-TOUT-CAS Court is built as carefully as a skyscraper. Only the finest of materials are used.

OUR FINANCIAL responsibility is of the highest.

OUR MORAL responsibility is such that we try to see every En-Tout-Cas Court at least once each season without cost to our clients to make sure that they are delivering the satisfaction and the service to which owners are entitled.

THERE ARE four world-beaters in the En-Tout-Cas fast-drying tennis court line: Standard Red, Domestic Green, Private Estate and de Luxe Green.

PRICES VARY for only one reason—the cost of materials that go into them.

THE SAME matchless care in construction goes into every court we build.

We would like to send you copy of our new brochure to complete your files. Please write today.

GUY C. FOSTER, Inc., American Agents
128-E Water St., New York, N. Y.

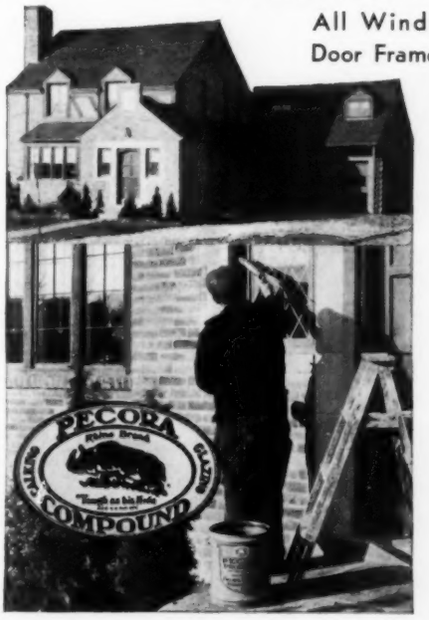
En-Tout-Cas
FAST-DRYING TENNIS COURTS

IN THIS

KELVIN HOME

All Window and Exterior Door Frames are Calked with

PECORA



This Kelvin Home in Birmingham, Michigan, was built according to working plans and specifications rendered by J. Ivan Dise, Architect, from the original Kelvin Home design developed by Kelvinator Engineers. Kelvin Home is the first moderate cost home embodying year-'round air-conditioning and a completely electrified kitchen.

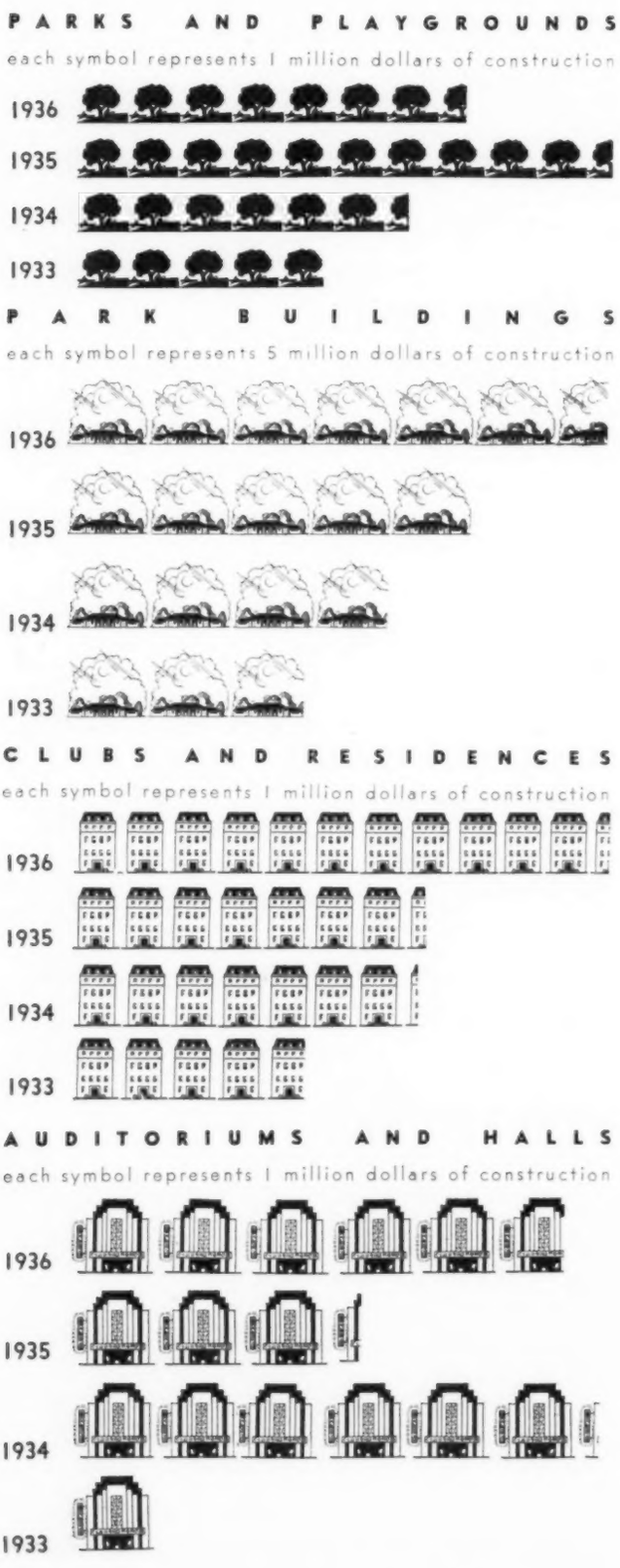
Pecora Calking Compound is widely used for air conditioning projects because of its reliability in not only preventing the infiltration of dirt, dust and outside air, but also as an important aid in preventing heat losses.

For further details see Sweet's Catalogue or write direct to us.

PECORA PAINT COMPANY
SECOND ST. & ERIE AVE. PHILADELPHIA, PA.
Member of Producers' Council, Inc.
Established 1862 *by Smith Bowen*

Leisure Demands More Recreational Facilities

by L. SETH SCHNITMAN, *Chief Statistician, F. W. Dodge Corporation*



Shorter work weeks are adding more hours for leisure. To serve wholesomely and healthfully the mounting time available for recreation, attention naturally focuses on existing and required recreational facilities. Expenditures for such projects have come a good distance since 1932. But the private types—clubs, lodges, auditoriums, halls—are still only fractions of what they were in the late 1920's when the work week was generally much longer and, conversely, when hours available for leisure were generally fewer. Thanks to the Federal program for stimulating construction, parks, park buildings and playgrounds were until recently being constructed in a volume in excess of that shown for 1929.

Excepting theaters, which though serving leisure are distinctly commercial in character, recreational facilities may therefore be classified in the following manner: (1) parks; (2) park buildings; (3) auditoriums and halls; (4) clubs and lodges. During the initial quarter of 1937 sizable improvement occurred in the volume of construction over the results in the same quarter of last year in auditoriums and halls and in clubs and lodges. But in the case of parks and park buildings the first quarter of the current year fared less well due to a decided slowing in the WPA and PWA programs—nor does any nearby reversal in trend loom as to these latter categories until state and local governments can once again take up the financial burdens temporarily carried by the Federal government.

For auditoriums and halls and for clubs and lodges, too, it is probable that so long as the national income continues to rise greater expenditures for such facilities will be made. These recreational types are much more largely dependent upon private finances than are parks, park buildings and playgrounds.

By far the largest volume of construction in the recreational field centers currently in park buildings; for the first quarter of 1937 this type involved expenditures about three times as great as either parks or auditoriums and halls and more than twice the total for clubs and lodges. But in 1929, when the nation was enjoying a period of pseudo-prosperity, clubs and lodges represented, far and away, the most important classification; then expenditures were more than three times the volume shown for park buildings, about 12 times the volume for parks, and more than four times the total expenditures for auditoriums and halls.

NOTE: All charts cover construction conditions in the 37 states east of the Rocky Mountains only.

the BEST SEAT in the house IS CHURCH

Specify CHURCH Sani-Black SEATS for theatres, auditoriums—any building where the public goes. They're built to stand the gaff. Indestructible . . . impervious to time, acids and abuse, they outlast the building itself. And their FIRST cost is the LAST.

CHURCH Sani-Black SEATS are molded of hard rubber into one unbreakable unit by 108 tons of pressure. Hinge posts are hard rubber over brass with no exposed metal to rust or corrode. They are absolutely hygienic . . . easy to clean with soap and water.

Many of the world's largest public buildings — Empire State, Chrysler, Radio City — have selected CHURCH Sani-Black SEATS as standard equipment. Specify them on your next job. They fit all bowls. Write today for the catalogue showing the complete line and free sample cross section. Dept. M6, C. F. CHURCH MFG. CO., HOLYOKE, MASS., *Division of American Radiator & Standard Sanitary Corporation.*

THE FIRST COST IS THE LAST

HARD RUBBER *molded under 108 tons pressure makes each Sani-Black Seat an unbreakable, everlasting unit.*

STEEL HINGE PLATES *molded integrally, never loosen. Hinges, hard rubber over brass, never corrode.*

CHURCH *Sani* SEATS

Entrance to Greenwich Savings Bank

REVOLVING DOORS CONTROL DRAFTS

and eliminate dirt and dust

Drafts cost money — even in warm weather. They bring in dust and dirt—causing spoilage and cleaning bills. General Bronze Revolving Doors are open and closed at the same time—they seal the entrance and shut out drafts, dirt and dust.

General Bronze Revolving Doors of aluminum, stainless steel or bronze are built to withstand time, weather and hard usage. They are collapsible, panic-proof—and easily operated.

Air-conditioned buildings particularly need these revolving doors. Their amazingly efficient seal keeps out hot air and reduces both the initial and the operating costs of air-conditioning.

Whether you are building or modernizing, you will be interested in air control. Investigate General Bronze Revolving Doors. Write today for our illustrated catalog describing revolving doors for every type of building.

WINDOWS • REVOLVING DOORS
• TABLETS •
ARCHITECTURAL METAL WORK

GENERAL BRONZE CORPORATION
34-19 Tenth Street · · Long Island City, N.Y.

THE ARCHITECT SAYS . . .
about CHLORINATION

Recently completed gymnasium building at Brooklyn College—and below, a view of the pool. Randolph Evans, Architect, N. Y. C.

In the new Brooklyn College, a $10,000,000 project, every detail of materials and equipment is receiving close scrutiny. Reliable performance on thousands of other pool installations justified the specification of W&T Chlorinator and Ammoniator for pool sterilization.

Randolph Evans says:

"We have specified Wallace & Tiernan Chlorinators for the swimming pool at Brooklyn College. Their qualities of disinfecting are such as to insure a healthy pool and the water is kept constantly sterilized."

The next job you design warrants this same consideration. W&T Chlorinators and Ammoniators justify your specification by giving years of accurate, dependable service at minimum maintenance expense. Their continued satisfactory operation is the direct responsibility of a nationwide service organization. Chlorination specialists will be glad to consult with you on any problem of water treatment without obligation on your part.

The W&T Swimming Pool Series reviews sterilization problems of 8 different types of pools. Ask for your copies.

"SWIM IN DRINKING WATER"

WALLACE & TIERNAN CO., INC.

Manufacturers of Chlorine and Ammonia Control Apparatus

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Project:
WAIKIKI THEATRE
Honolulu

Architect:
C. W. DICKEY

Carpet Counsel:
BIGELOW WEAVERS

On the FLOOR *at Waikiki*

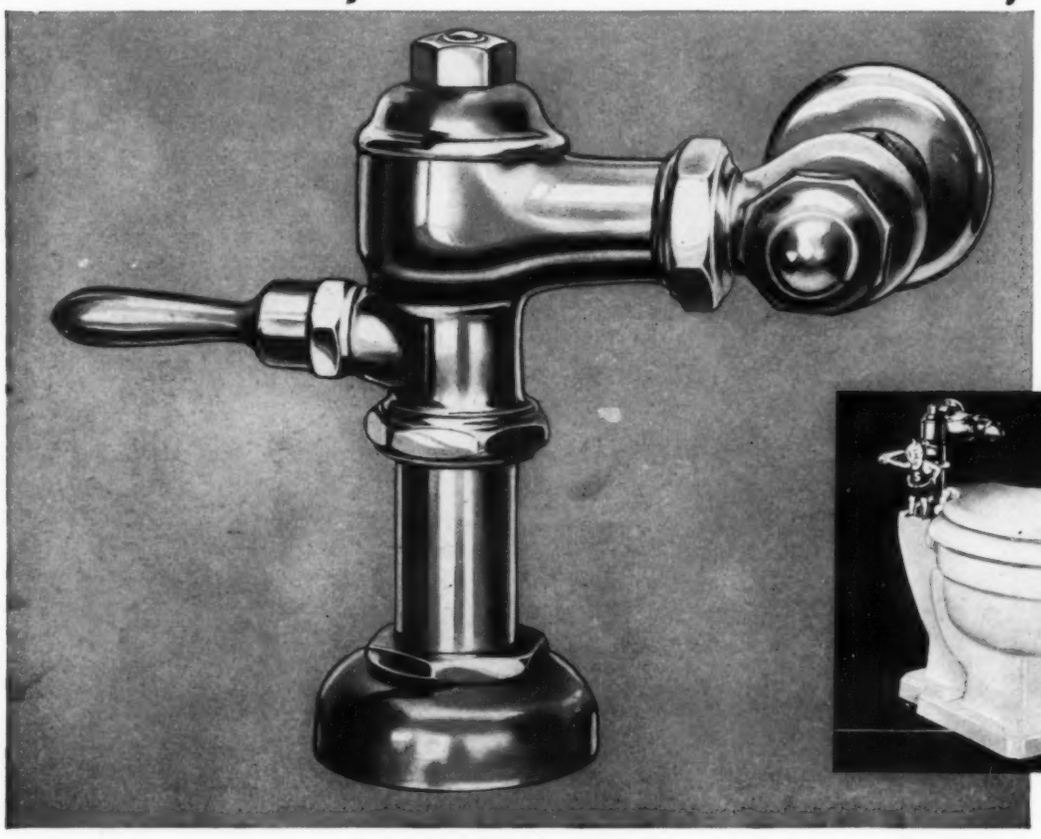
carpets specially created by Bigelow

SET in a tropical garden, the new Waikiki Theatre is of modernistic design skillfully fitted to its Hawaiian environment by architect C. W. Dickey.

Its interior treatment is "atmospheric": garden walls with remarkably realistic trees and tropical foliage form the sides. Down front, a huge rainbow arches over the screen. Overhead, drifting clouds and twinkling stars in a deep blue sky. And underfoot, luxurious Bigelow carpet in a design created especially for this theatre.

Whatever the effect you seek, you can rely on Bigelow's Carpet Counsel experts to help you achieve it! Contract Dept., Bigelow-Sanford Carpet Co., Inc., 140 Madison Ave., New York.

Silencing the noise nobody wants



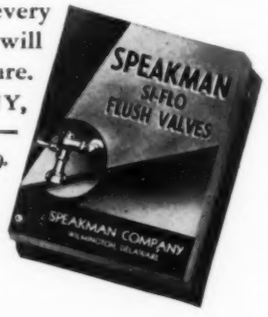
The Speakman Si-Flo Flush Valve, Pat. No. RE. 20,246, is so quiet in operation that it cannot be heard outside the bathroom.

OF all plumbing fixtures, a noisy flush valve is no doubt the most annoying. But the Si-Flo Flush Valve solves this problem perfectly.

In its operation, this valve is silent, smooth and efficient—reducing the sound of rushing water to a whisper which cannot be heard outside the bathroom.

In its construction, the Si-Flo is simple and sturdy throughout and has the sparkling chromium finish which is typical of Speakman quality fixtures. The entire operating mechanism of the valve is centered in the compact piston unit; if repairs are ever needed, this unit can be replaced in a very few minutes and at minimum cost.

See Sweet's Catalog File for full details on the Si-Flo Flush Valve. Also the Anystream Self-Cleaning Showerhead, the Mixometer, the Grace-Line Sink Fixture and many other quality items of the Speakman Line—all of them certain to please your most discriminating client. The Speakman Line today includes almost every kind of bathroom and kitchen fixture—in a great variety of types and trim. Regardless of Speakman's reputation for top quality, the price range is actually wide enough to merit your consideration for every job—large or small. We will gladly send you literature. SPEAKMAN COMPANY, WILMINGTON, DEL.—*Quality fixtures since 1869.*



●

Just published—new Si-Flo Catalog—gives valuable reference tables and data for every type of installation.

SPEAKMAN

SHOWERS AND FIXTURES

Above: Standard single-tier locker—raised from floor on legs.

Left: Combination box compartments and single-tier lockers—on cement base.

A FAST—EASY—SATISFACTORY WAY TO SOLVE YOUR LOCKER PROBLEMS

—ask the A·S·E man for details

SPACE, SIZE, SHAPE, CAPACITY
THERE'S AN A·S·E LOCKER FOR EVERY RECREATIONAL BUILDING NEED

Adequate and correct locker facilities are of primary importance in recreational buildings. The demands for ample accommodations and economy of floor space may be met satisfactorily by using one or more of the many styles and types of A-S-E Lockers.

Frequently lockers in recreational buildings are subject to extremely hard usage. A-S-E Lockers are constructed to give years of trouble-free service and will stand up under unusually rough treatment.

Double-tier corridor lockers recessed on terrazzo base.

A-S-E engineers can make helpful and valuable suggestions. Their many years of experience enable them to recommend the most practical solution of the placement problem and the type of locker which will best satisfy each individual requirement. They will gladly demonstrate the sturdy door and hinge construction, the advantages of A-S-E locking devices, the extra built-in strength of the frame corners and numerous other important points in the selection of durable, dependable lockers. Let an A-S-E engineer help you solve *your* problem—there is no obligation.

• • •

Mail the coupon for a copy of Catalog C-30. Or just check the first space in the coupon and the A-S-E engineer located nearest to you will call to give you complete locker information.

ALL-STEEL-EQUIP COMPANY, INC., 616 JOHN STREET, AURORA, ILL.

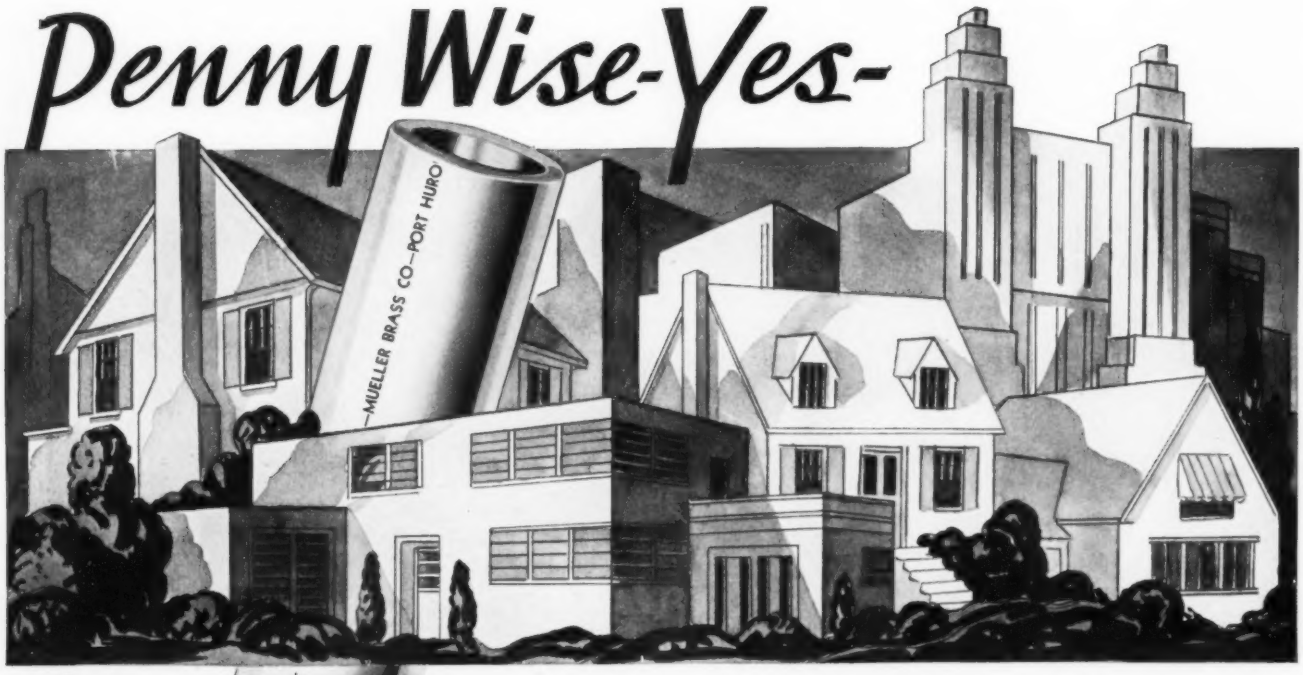
Gentlemen: ☐ Please have an A-S-E engineer furnish complete locker information.
☐ Send a copy of Locker Catalog C-30.
☐ Send a copy of the booklet giving complete details about A-S-E Wall-Robes.

Name..... *Address*.....

City..... *State*.....

ALL-STEEL-EQUIP COMPANY, INC.
STEEL LOCKERS—WALL ROBES—STORAGE CABINETS
SHELVING—FILING AND OTHER PUBLIC BUILDING STEEL EQUIPMENT
616 JOHN ST. • AURORA, ILLINOIS

Penny Wise-Yes-



But Not PIPE FOOLISH!

● It is but good business to be penny wise in building a home or apartment, as well as in all things else, but—saving a few cents or dollars on the initial cost of vitally important items—the piping system, for instance—at the expense of enduring quality, is false economy.

Every Architect, Building Manager or Realtor knows that a reliable piping system for plumbing and heating is one of the most important factors in the building. It is a surprising fact that a great deal of thought and money is frequently spent on outward appearances, while vital matters are quite often taken for granted. Of course, the home should be modern in design, its kitchen, bathroom and laundry fixtures should be handsome and conveniently located . . . but unfortunately, good looks do not assure good service.

The efficiency of these modern fixtures and the very livability of the home itself depend upon a permanently reliable piping system for the plumbing and heating—in a word—A STREAMLINE COPPER PIPE AND FITTINGS SYSTEM.

A STREAMLINE Piping System cannot rust, clog or leak. It is a trouble-free system that will always provide efficient service without costly and annoying interruptions or replacements.

Even the first cost of STREAMLINE Copper Pipe is but slightly higher than one of rustable materials, and in the long run it costs much less. Its first cost is the last one. For efficiency and economy, as well as appearance and added resale value, investigate STREAMLINE before you decide.

Send for Catalog A. Your request will bring it by return mail.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

STREAMLINE

TRADE MARK REG. U. S. PAT. OFFICE

COPPER PIPE AND FITTINGS

FLOORS

Museum of Natural History, Dallas, Texas. Flooring Contractors, E. Y. Sanguinet Company, Ft. Worth & Dallas, Texas. Architects, C. H. Griesenback & Associates.

"... of UTILITY and CHARM for those who value both" " " " "

RUBBER FLOOR COVERING — AMTICO — MARBLEIZED RUBBER TILE

Fine buildings deserve fine floors and in floors of Amtico Rubber Tile every requisite of the most discriminating owner is anticipated. In beauty of design . . . in appealing color, harmony . . . in sanitation and lifetime service Amtico Rubber Tile presents limitless opportunities for distinction that both the architect and owner are quick to visualize.

For details—see Sweet's Catalog or write for new color folder showing many attractive installations.

A Partial List of Installations

St. John's College, Brooklyn, N. Y., Frostburg Normal School, Frostburg, Md.; Warren Harding High School, Bridgeport, Conn.; Drexel Institute Dormitories, Philadelphia, Pa.; Quincy High School, Quincy, Ill.; College St. Vincent, New York City; Northwestern University, Chicago, Ill.; University of Utah, Salt Lake City, Utah; John Marshall High School, Rochester, N. Y.; Olean High School, Olean, N. Y.; Elementary and High School Bldgs., Haverstraw, N. Y.

Hotel New Yorker, New York City; Hotel McAlpin, New York City; Dallas Museum of Natural History, Dallas, Texas.

San Antonio Public Library, San Antonio, Tex., University of Maryland, Baltimore, Md., University of Delaware, Newark, Del.

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Remote Control

The Modern Way

to turn lights "on and off" from distant points

For over twenty years "Diamond H" Remote Control has been used in the country's finest

THEATRES
AUDITORIUMS
STADIUMS
SWIMMING POOLS
AIRPORTS
RECREATION BLDGS.
BASEBALL PARKS
OFFICE BLDGS.
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HOMES
HOSPITALS
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The control of many lighting circuits, easily, conveniently and economically, is no problem with "Diamond H" Remote Control Switches on the job.

TYPE "F" for general control of auditoriums, office buildings, stadiums, etc.

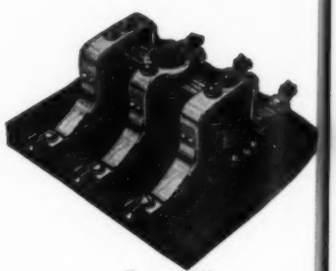
AUTOMATIC CHANGEOVER to EMERGENCY SUPPLY

TYPE "G"—Full automatic control between main supply and emergency lighting circuit. For Schools, Theatres, Hospitals or wherever life is to be safeguarded.

BURGLAR PROTECTION for HOMES and INSTITUTIONS

TYPE "H"—A multi-circuit switch with Master Switches to instantly light house and grounds.

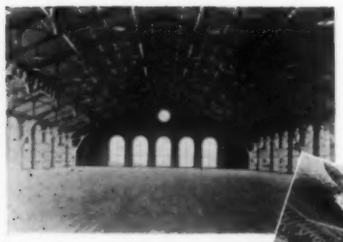
Bulletin No. 10-C describes these switches with typical installations and wiring plans for many uses. Send for it. Dept. A. Our engineering service will aid in selecting proper controls for any installation.

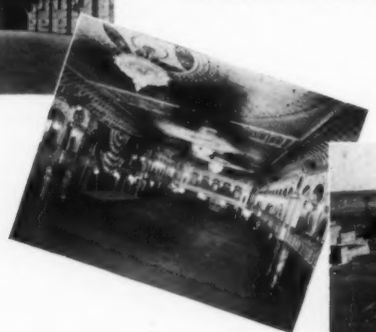


Type "F" Remote Control Switch.

THE HART MANUFACTURING CO.
HARTFORD, CONN.

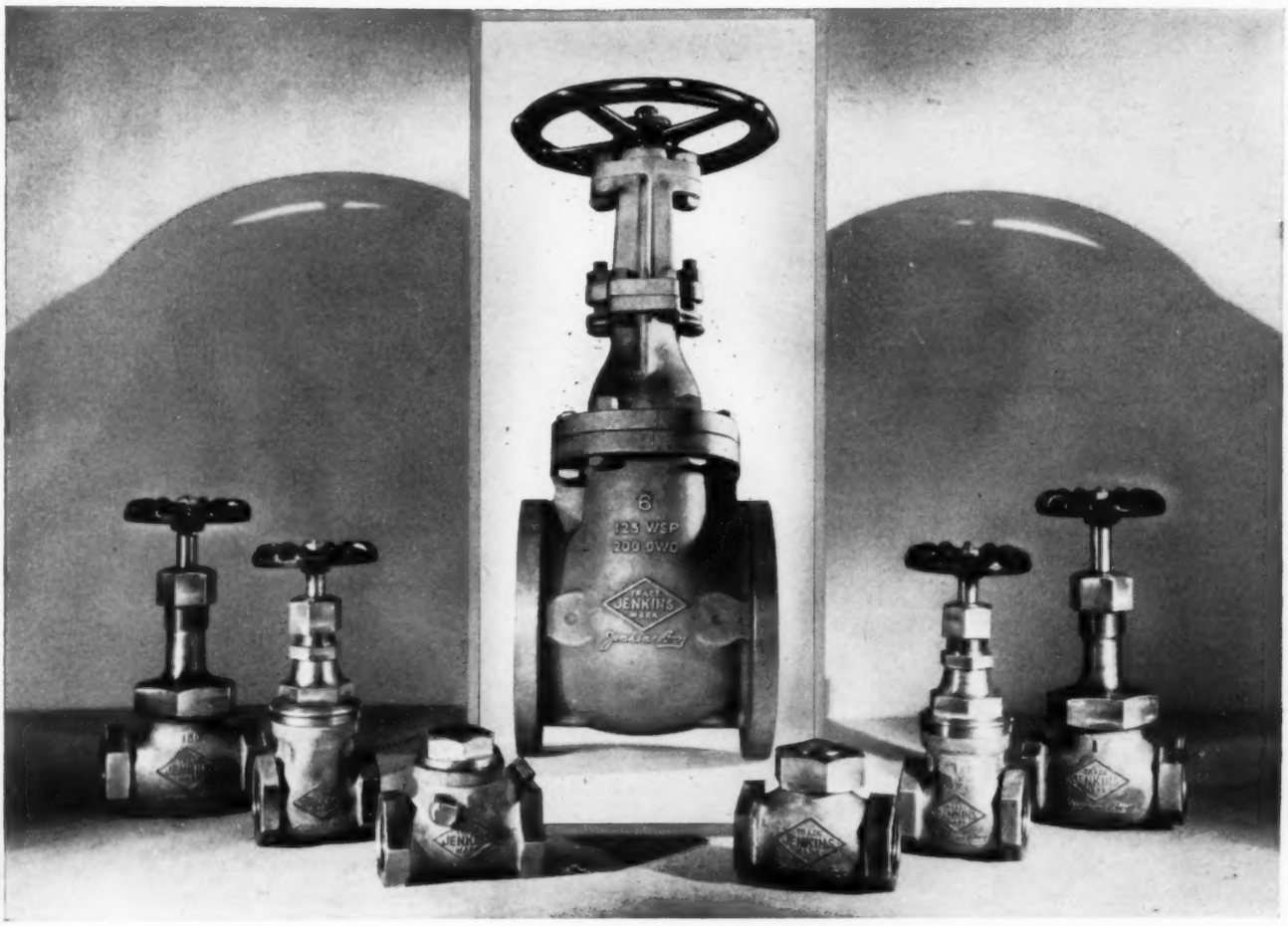
DIAMOND H SWITCHES





For EVEN LOWER *valve costs*

bring Jenkins IRON Valves into the picture, too



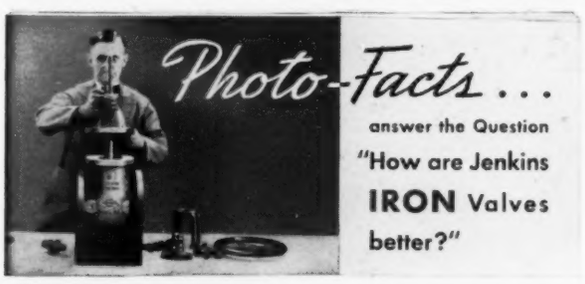
IN buying IRON as well as bronze valves, a steadily increasing number of concerns are specifying *"Jenkins"*. And their records of valve maintenance and replacement expense show it is a sure way to cut valve costs to a new low.

"The best" is not too good for large lines, where valve troubles are especially costly. Repairs require much time and labor. And, expensive service interruptions, or new parts and replacements may be involved. It is economy to use valves that will stay on the job with the minimum of attention.

Jenkins IRON Valves are made to do exactly that. They have the same characteristics... the same ability as the famous Jenkins Bronze Valves to give an extra measure of trouble-free performance. There are good reasons why so many experienced valve users specify "Jenkins" to get the best in IRON valves. Our interesting new booklet PHOTO-FACTS gives the reasons in picture form. It will pay you to write or ask your supply house for a copy. See what Jenkins offers... at the standard price of good valves.

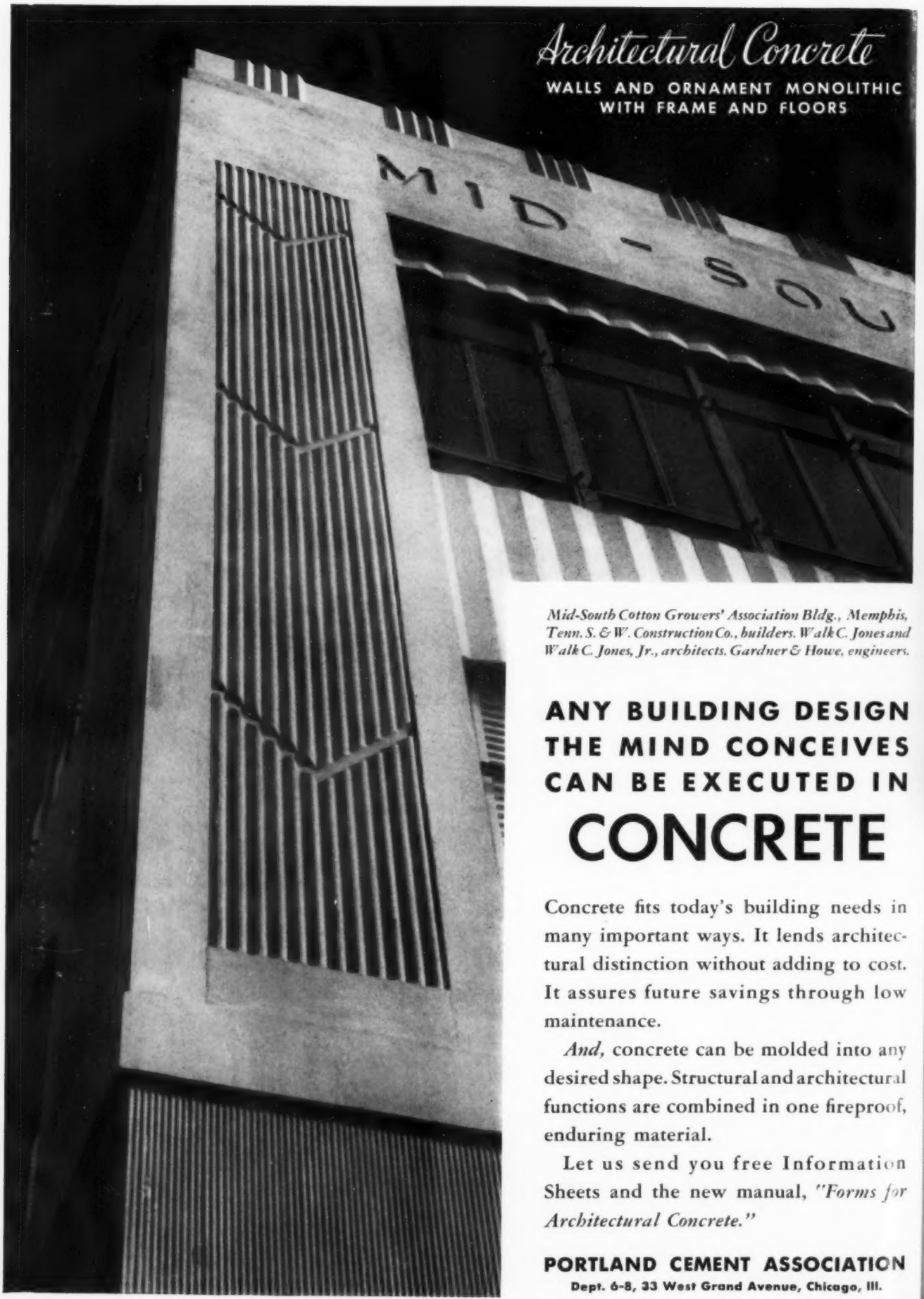
JENKINS BROS., 80 White St., New York; 510 Main St., Bridgeport; 524 Atlantic Ave., Boston; 133 N. Seventh St., Philadelphia; 822 Washington Blvd., Chicago; JENKINS BROS., Ltd., Montreal, Can.; London, Eng.

SEND FOR THIS IMPORTANT BOOKLET



JENKINS VALVES

BRONZE — IRON — STEEL



Mid-South Cotton Growers' Association Bldg., Memphis, Tenn. S. & W. Construction Co., builders. Walk C. Jones and Walk C. Jones, Jr., architects. Gardner & Howe, engineers.

ANY BUILDING DESIGN THE MIND CONCEIVES CAN BE EXECUTED IN

CONCRETE

Concrete fits today's building needs in many important ways. It lends architectural distinction without adding to cost. It assures future savings through low maintenance.

And, concrete can be molded into any desired shape. Structural and architectural functions are combined in one fireproof, enduring material.

Let us send you free Information Sheets and the new manual, *"Forms for Architectural Concrete."*

PORTLAND CEMENT ASSOCIATION
Dept. 6-8, 33 West Grand Avenue, Chicago, Ill.

Porcena

PORCELAIN ENAMEL TOILET PARTITIONS

Porcena Panels possess the natural structural strength of steel (not one sheet but two 16 gauge sheets applied on opposite sides of sound-deadening core) strengthened by porcelain enamelling (four layers) which provides a non-porous, flint-hard glass-smooth surface that is positively impervious to odors, acids, and moisture.

Used by people from every walk of life, lacking a proprietary interest in the equipment of public and semipublic buildings, the toilet room facilities are subjected to abuses which can be corrected only by the installation of Porcena Toilet Partitions.

An installation of Porcena Toilet Partitions usually inspires the respect and cooperation of all in realizing a heretofore unrealized standard of sanitation. The toilet rooms of public and semipublic buildings should set higher standards for clean, cheerful environments. The flint-hard glass-smooth surfaces of Porcena Toilet Partitions discourage the impulsive activity of those who often deface such equipment. Furthermore, these flint-hard surfaces are moisture proof, rustproof and non-porous. They absorb no odors and are impervious to ordinary acids.

Porcena Toilet Partitions embody exclusive features which fortify them to endure rough usage. Their sturdy strength and sound mechanical construction make them particularly suitable for toilet rooms of all types of public and semipublic structures.

A Sanymetal representative is competent to discuss toilet room environments and assist you with constructive suggestions. Write for brochure.

The first to originate and offer a definite style of toilet partition and wainscot panel utilizing porcelain enamelled panels, Sanymetal presents a wider scope for the creative talents of a patient profession and protects the building industry in the use of such materials by years of accumulated engineering and craftsmanship experience in the manufacture of certain exterior parts of porcelain enamelled metal.

Craftsmanship in Metal

The Sanymetal Symbol

Sanymetal's catalog is contained in Sweets' for 1937 identified as catalog 20/18.

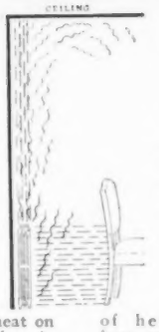
Sanymetal

THE SANYMETAL PRODUCTS CO., Inc.
1705 Urbana Road • Cleveland, Ohio

TOILET AND OFFICE PARTITIONS

Prove It Yourself

Radiant heat travels in straight lines. Drafts do not deflect it. It does not heat the air it passes through. Does no heating until it strikes and is *reflected* from furniture, walls and persons. The test above proves that drafts have no effect on it. You feel just the same heat on your hand when the fan is running as when it is not.



Both Heats at Work

Burnham combines both radiant and convected heat in balanced proportions.

Sketch shows you how radiant heat travels in straight lines, and convected in wavy circulatory ones. It is the balanced combination of them both in the Burnham Air Conditioning System of heating that makes it heat so much quicker and use less fuel.

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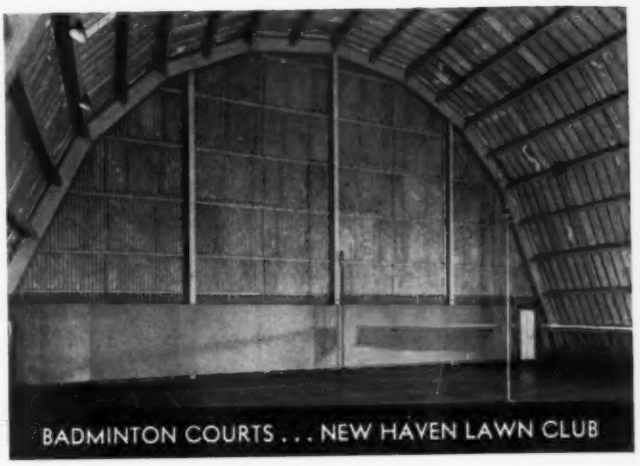

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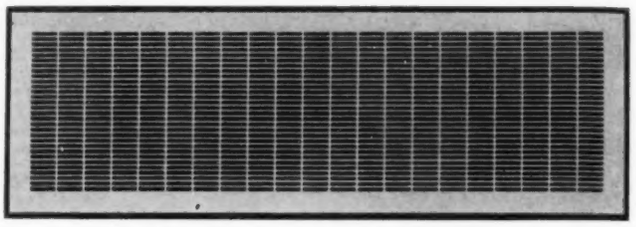

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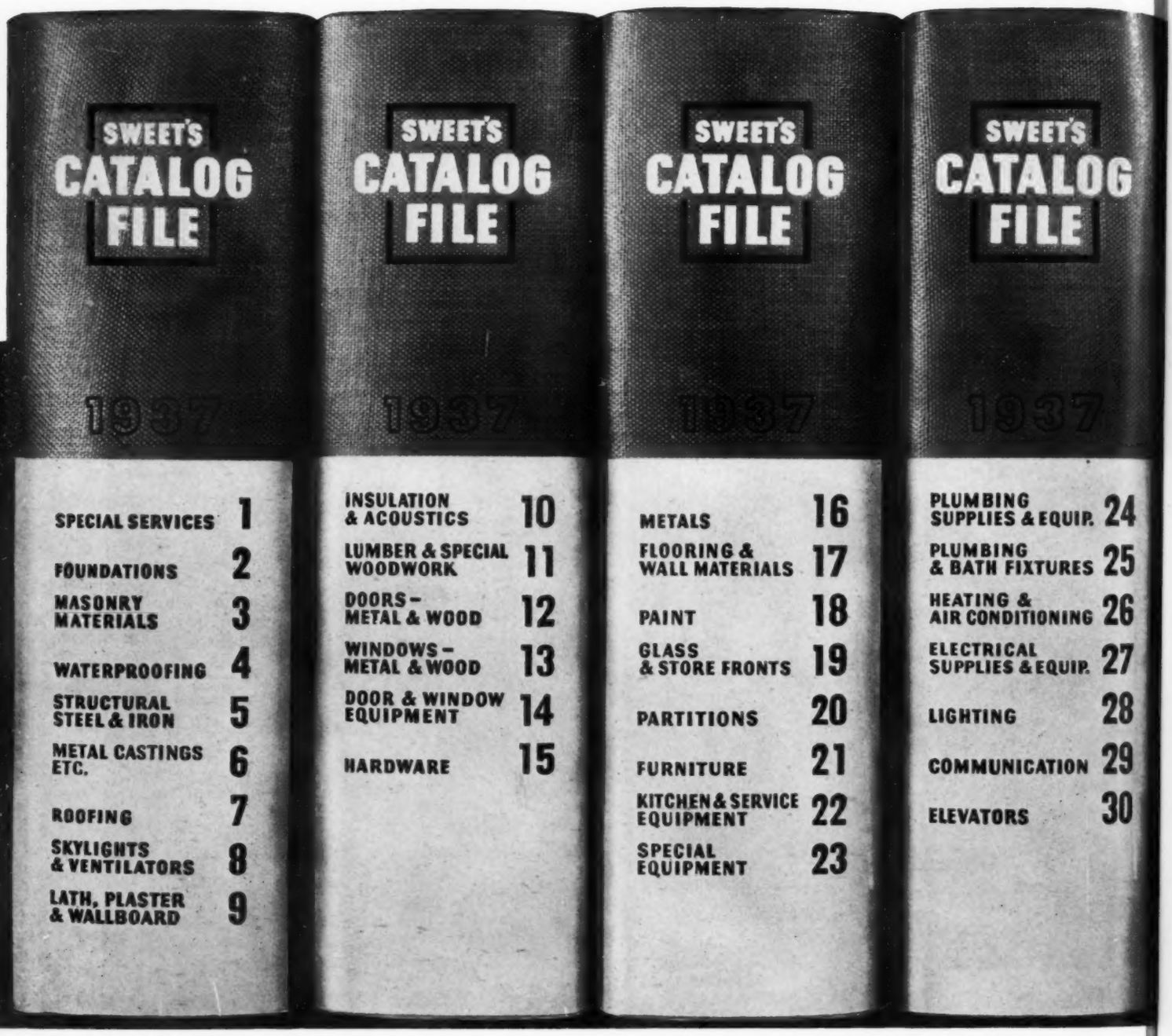

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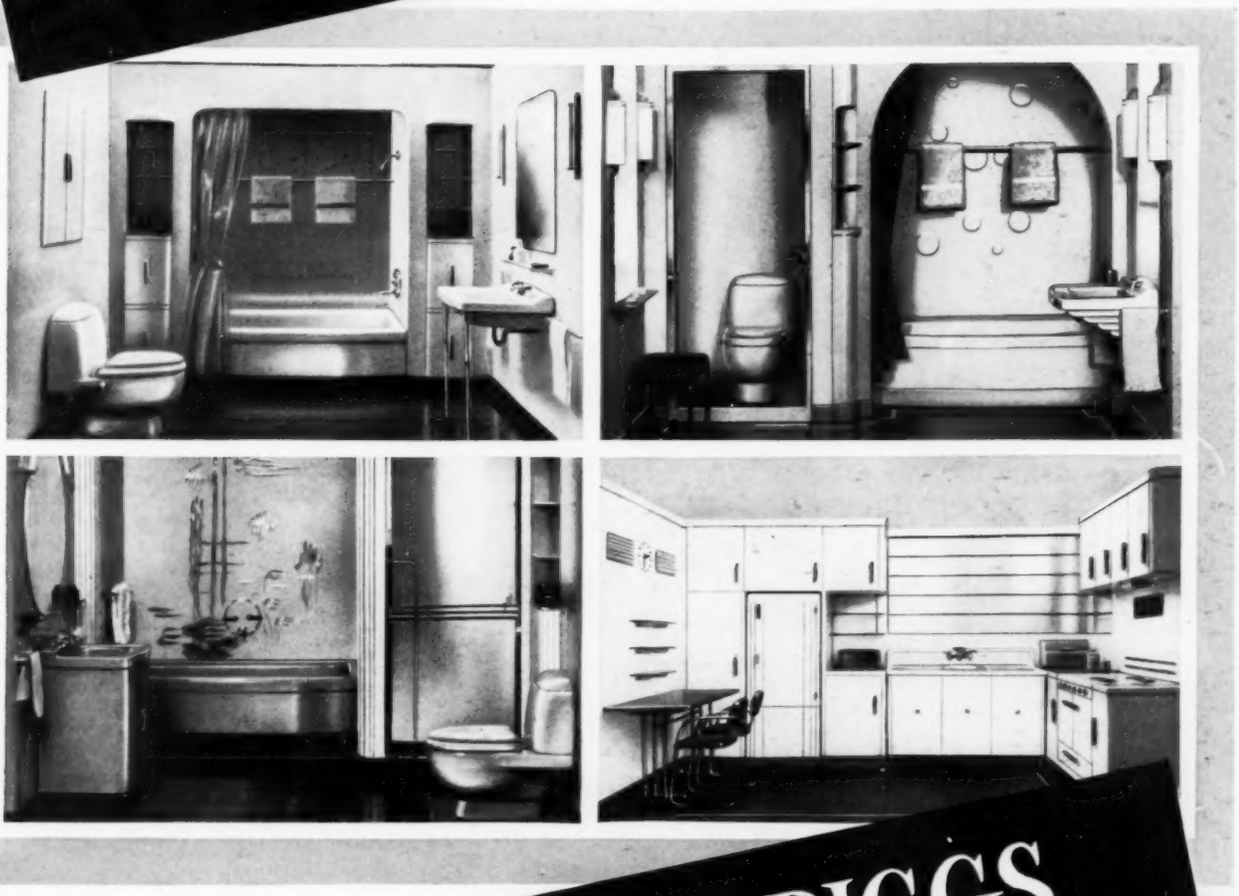

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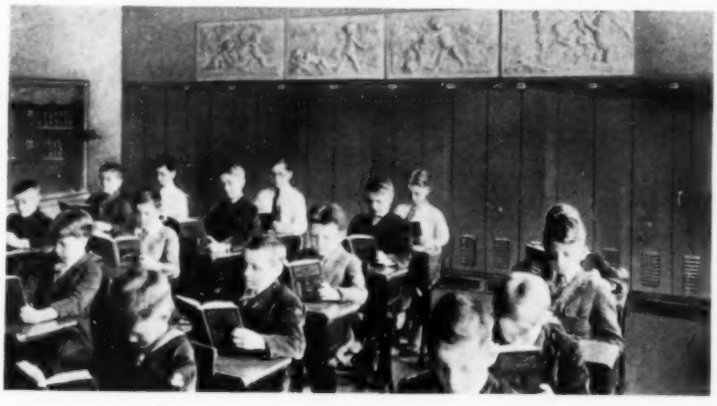

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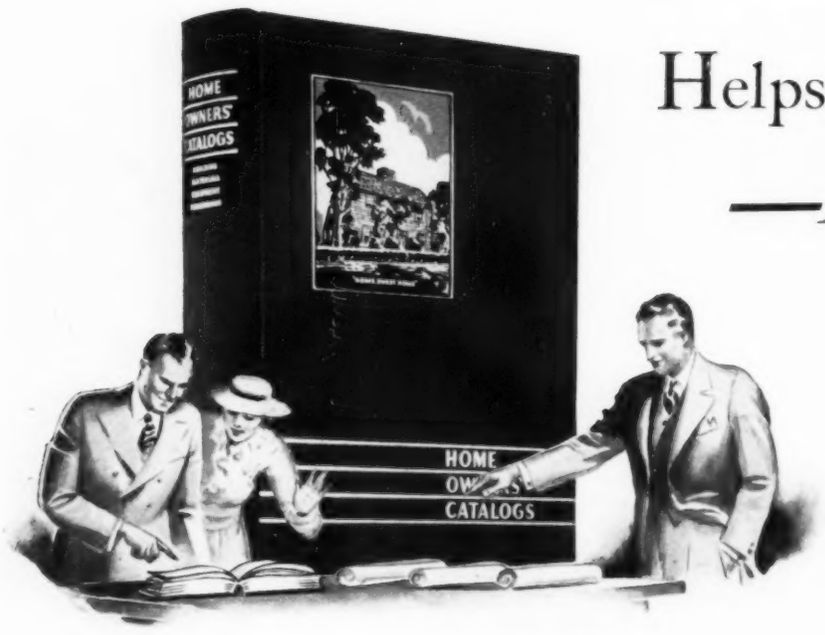

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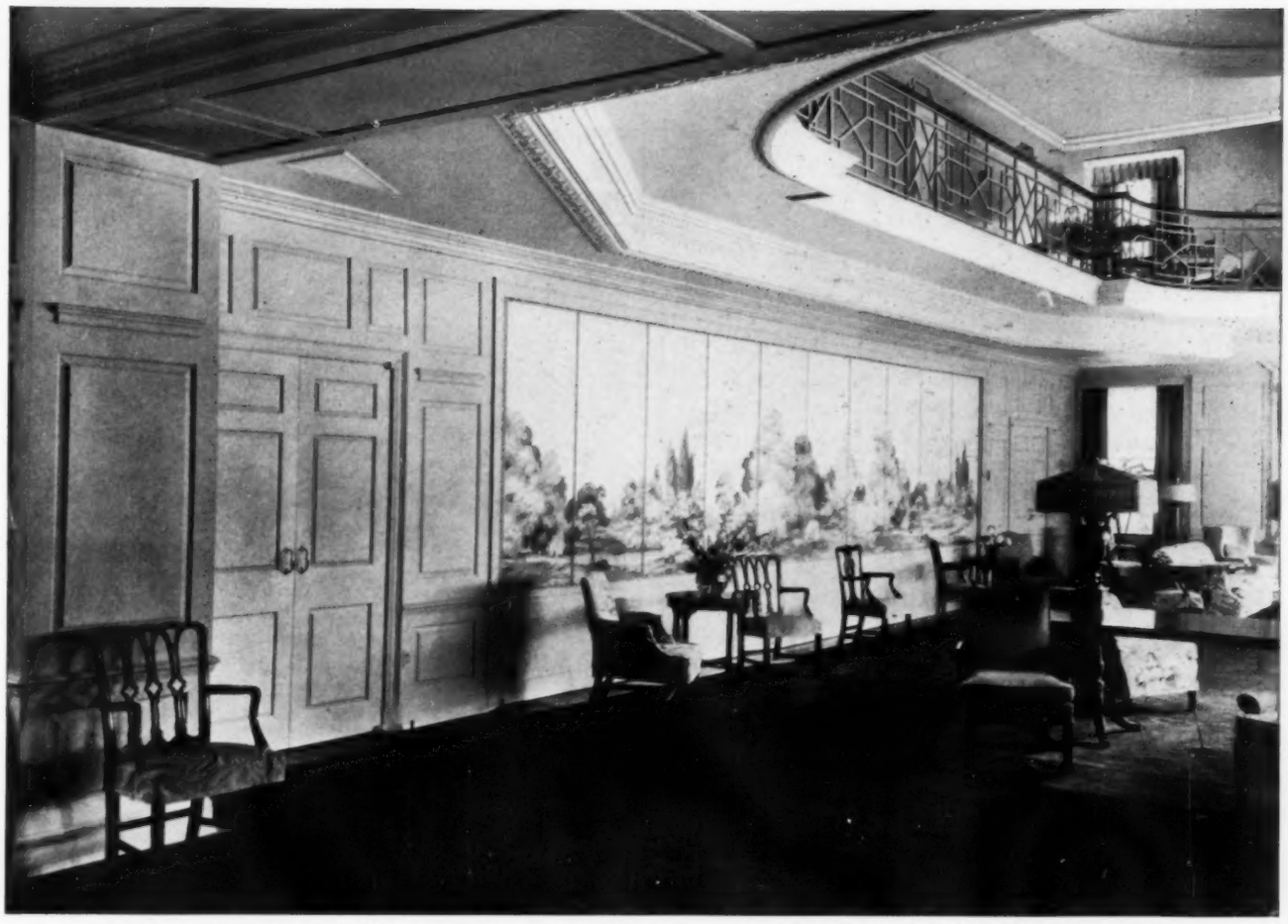

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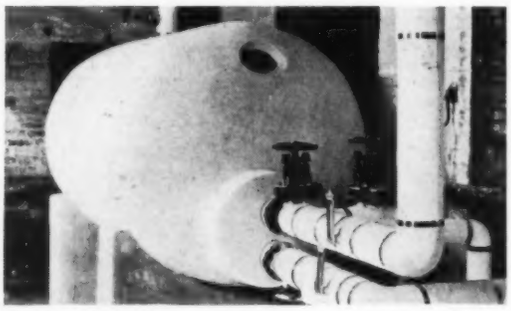

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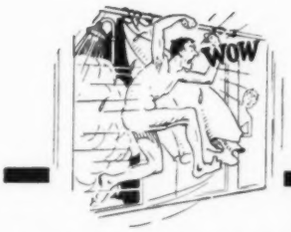

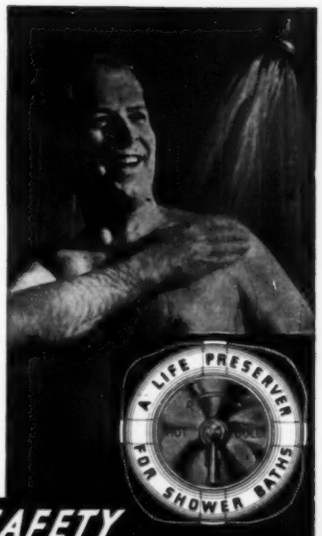

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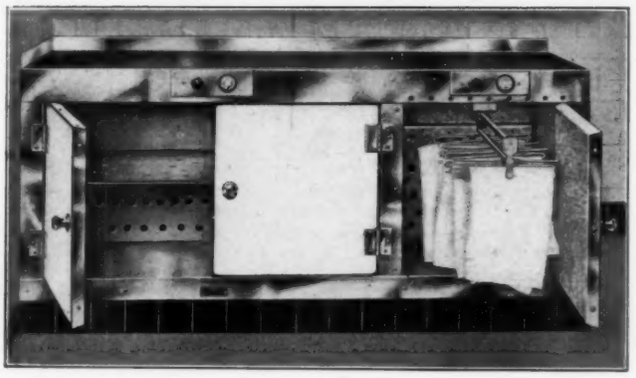

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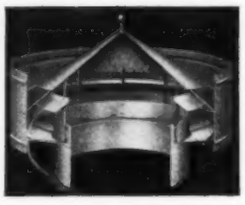

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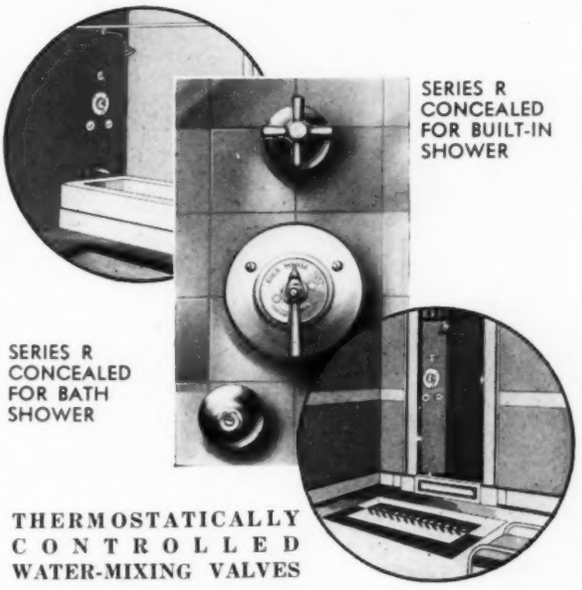

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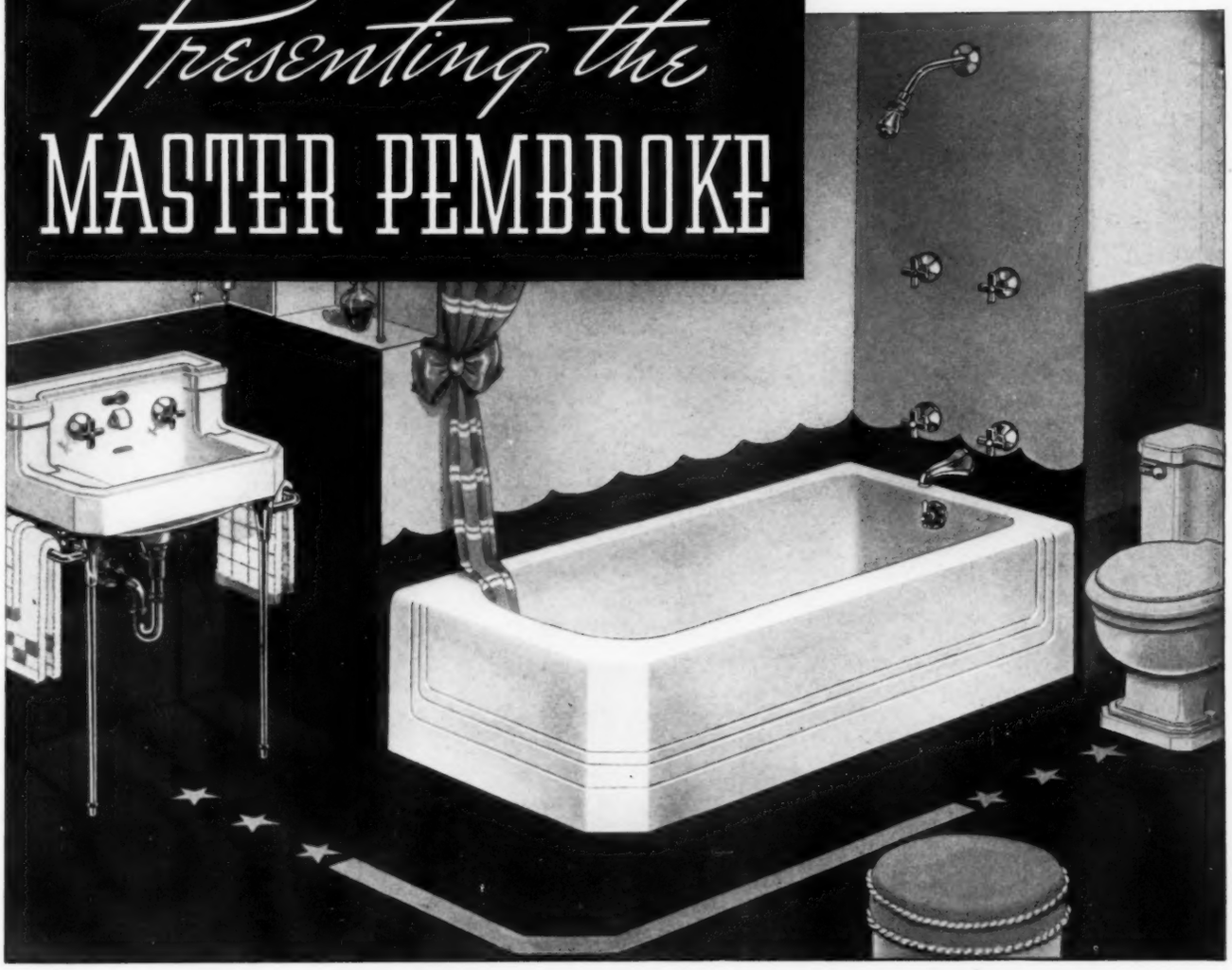

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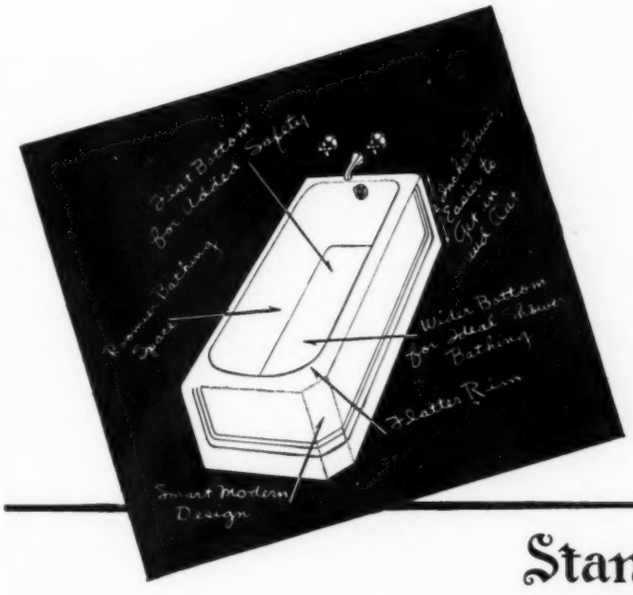

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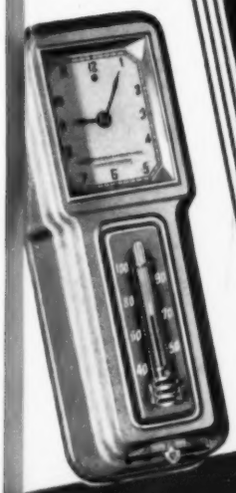

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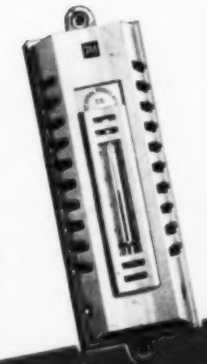

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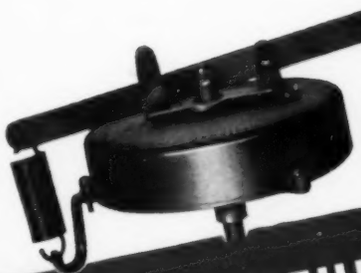

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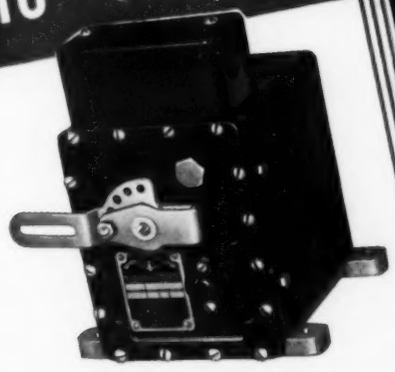

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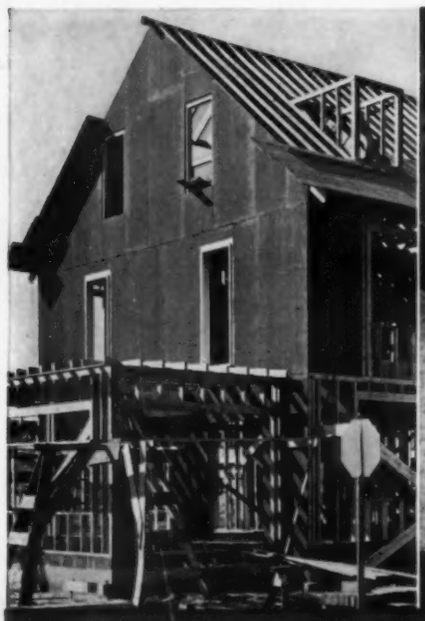

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